C&S REPORT: WHY CENTRALIZE DISPATCHING?

September 23, 1968

RAILWAY AGE

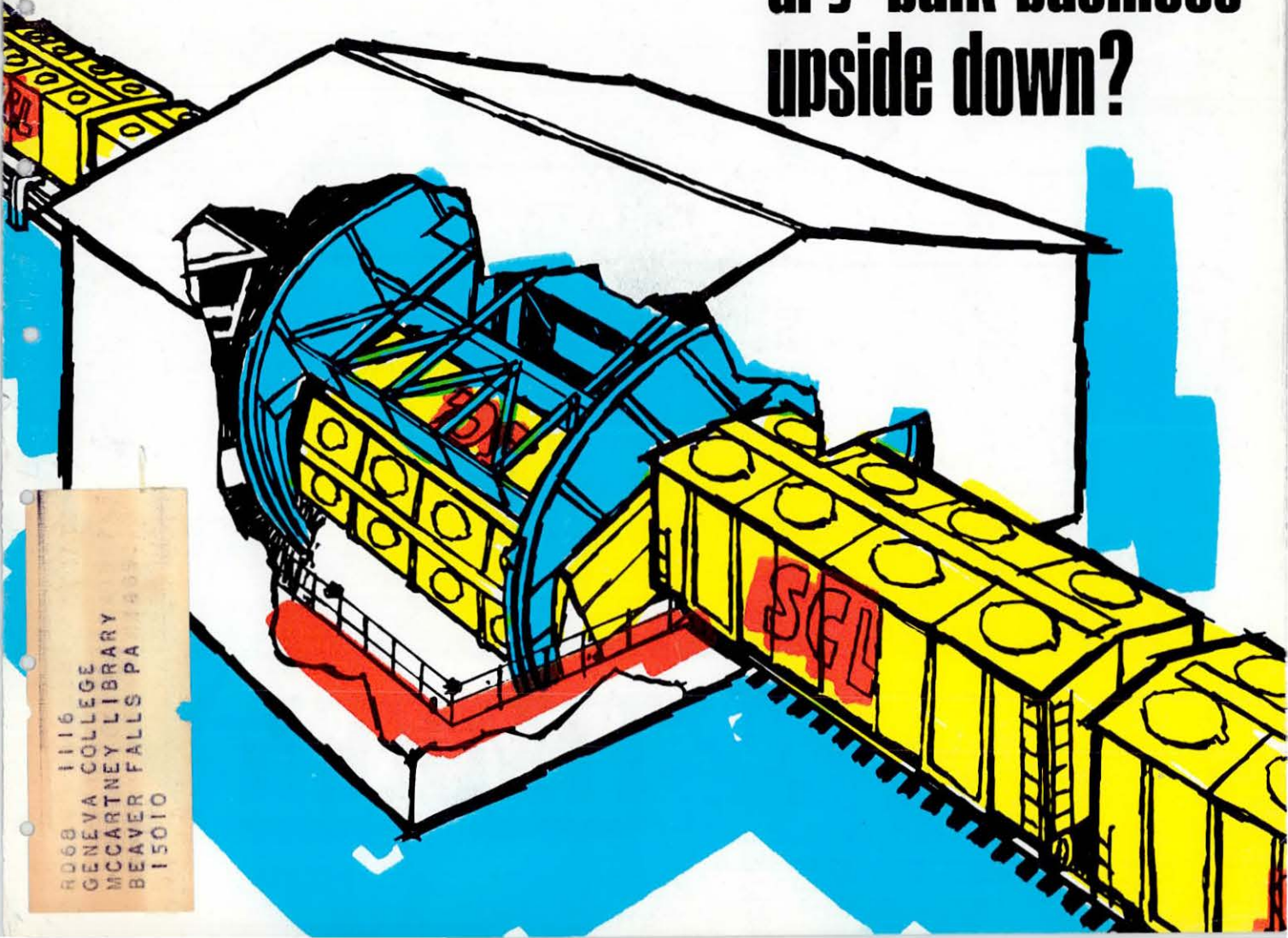
THE TRANSPORTATION WEEKLY

McCARTNEY LIBRARY
GENEVA COLLEGE

SCL'S 'FLIP-TOP' PHOSPHATE HOPPER:

Will it turn the dry-bulk business upside down?

SEP 23 1968



RD68 1116
GENEVA COLLEGE
MCCARTNEY LIBRARY
BEAVER FALLS PA
15010

-on Timken® bearings!

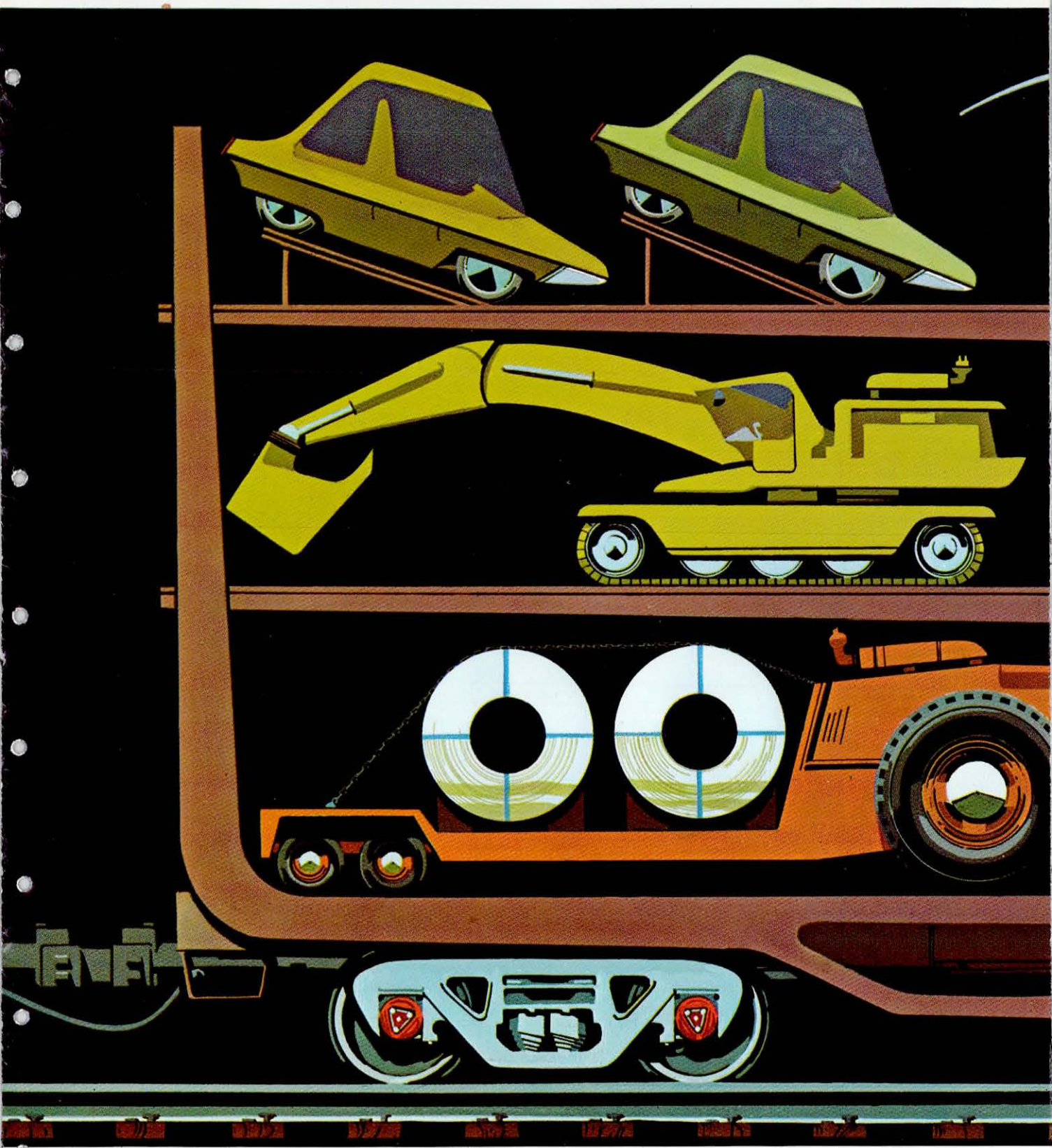
maintenance, and provide cargo a smoother trouble-free ride.

The Timken Roller Bearing Company, Canton, Ohio. Also makers of Fine Alloy Steel and Removable Rock Bits. Timken bearings sold in 133 countries. Manufacturing in Australia, Brazil, Canada, England, France, South Africa and the U.S.A.

TIMKEN®

TAPERED ROLLER BEARINGS

Here comes tomorrow-

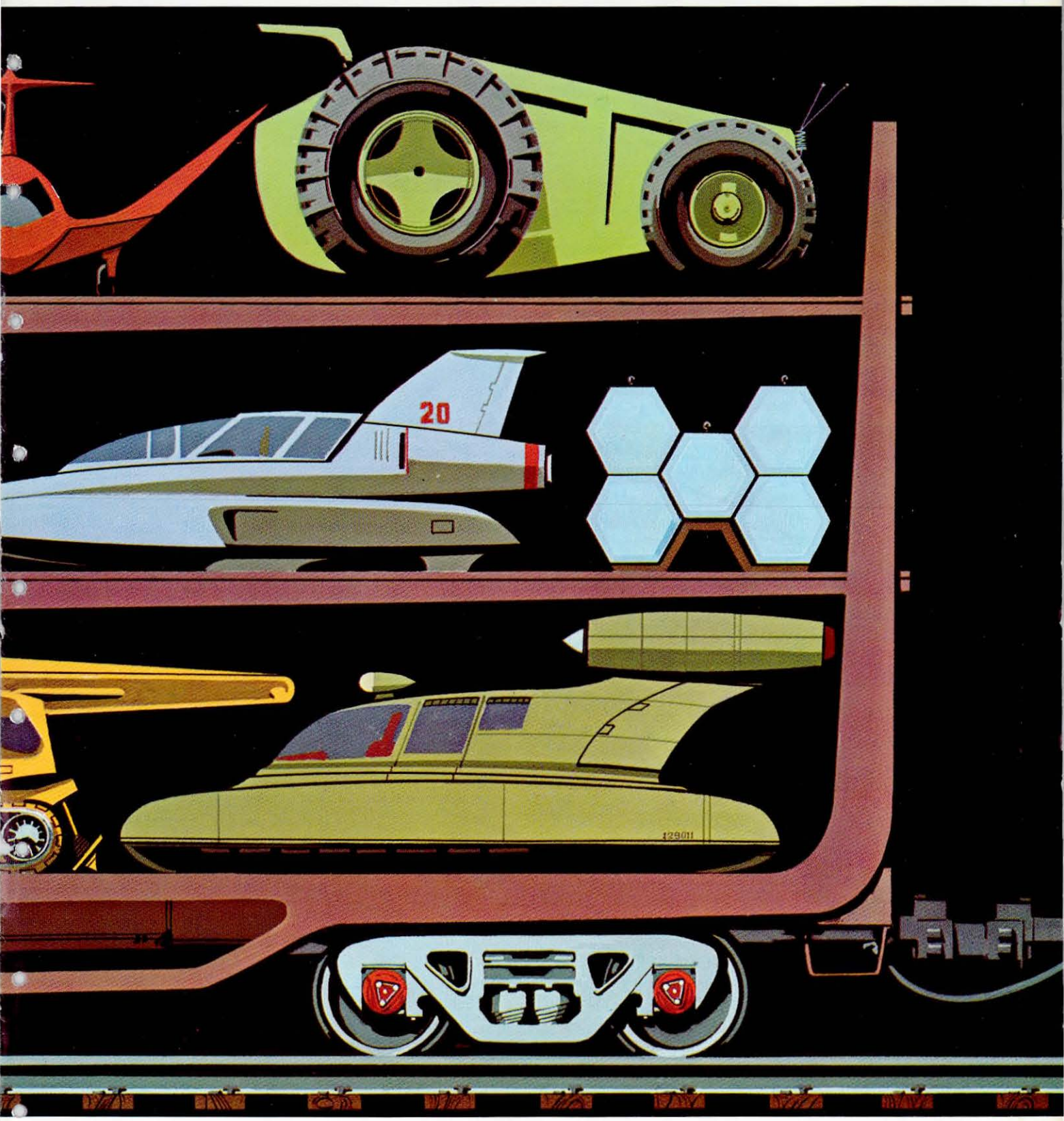


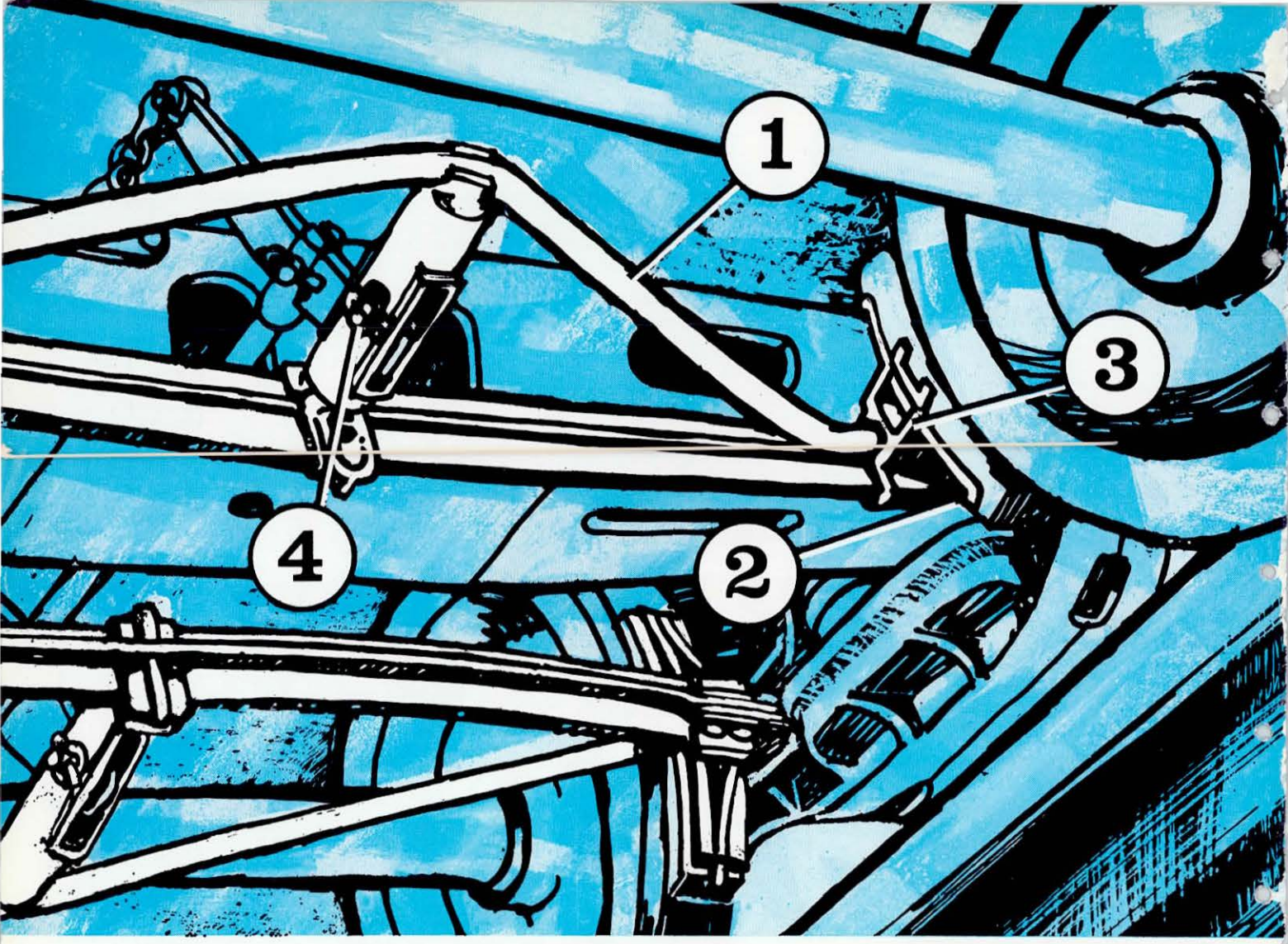
A railroad rack car for the future, carrying a load of tomorrow. And not as far off as you think. Already the railroad industry has revolutionized hauling with the concept of piggybacking. Railroads look forward to cars with new designs, new capacities, new versatility. To move new kinds of cargo, faster and easier.

And the Timken Company is ready to supply the Timken® "AP" (All-Purpose) tapered roller bearings these cars of the future will roll on.

Timken bearings are case-carburized for extra toughness, tapered to take both radial and thrust loads—or any combination. And Timken bearings have proved they last longer, require less

Clear track ahead!


20



Buffalo Unit Brake Beams are made from 4 different kinds of metal because there are 4 separate wear problems to be solved.

1. **One piece forged solid steel truss. No separate pieces to come apart.**
2. **Steel Wear Plates heat treated to extra hardness for long useage.**
3. **Malleable Brake Heads, engineered and constructed to AAR standards for iron or composition brake shoe.**
4. **Hardened steel bushing inserted at wear point in Malleable strut.**

Buffalo Unit Brake Beams are made from four different types of metal because there are four different wear problems to be solved. The creative engineering that matches metal to function is the reason that Buffalo Brake Beams have been specified more than 8 million times.

Buffalo Brake Beams are part of the Standard Braking System, which gives you high efficiency, low initial cost, and lower maintenance costs. You have the safety of hand braking on both trucks, a choice of brake shoe material and the protection of a body mounted cylinder. Specify Buffalo Brake Beams for both immediate and long term savings. Available in AAR #18, AAR #24, AAR #28, and AAR #36. For complete information write or phone.

See Us At Booth 187 Railroad Supply Association Exhibit
Sept. 28th to Oct. 2nd. Sherman House, Chicago, Illinois

BUFFALO BRAKE BEAM COMPANY

Buffalo, N. Y. 14218 • Lackawanna, N. Y. 14218 • Hamilton, Ont., Canada

MEMBER RPI RAILWAY PROGRESS INSTITUTE

RAILWAY AGE

Sept. 23, 1968 • Vol. 165, No. 12

THIS WEEK

45 'Flip-Top' may turn the dry-bulk business upside down

48 Needed: A system approach to car design

51 Are railroads investing unwisely in new equipment?

54 Chicago equipment exhibits open on Sept. 29

56 What centralized dispatching can do for you

82 New products for the mechanical side of railroads

116 Viewpoint—Public opinion: Plus—or peril?

DEPARTMENTS

65	As the Editor Sees It	86	Revenues and Expenses
111	Freight Carloadings	7	Short and Significant
12	Lines on Labor	80	Supply Trade
8	Monday Morning Report	116	Viewpoint
111	New Equipment	66	Watching Washington
82	New Products Report	11	Week at a Glance
80	People in the News	114	You Ought to Know

. . . AND COMING NEXT WEEK

Along the lines of the New Haven, the distribution-center concept is paying off handsomely both for the railroad and its shippers. It is described in the Sept. 30 issue. Also: How shippers stand to benefit from CN's new Toronto express terminal. A progress report on the war against loss and damage. And how multi-level rack cars have been adapted, at a cost of more than $2 million, for Detroit's new road-hugging 1969 models.

Railway Age, established in 1856, is indexed by the Business Periodicals Index, the Engineering Index Service and the Public Affairs Information Service. Name registered in U.S. Patent Office and Trade Mark Office in Canada.
Published weekly (except for four issues combining two-in-one) by the Simmons-Boardman Publishing Corporation at Third and Hunting Park Ave., Philadelphia, Pa.
Railroad employees' subscription rate, U.S. possessions, Canada and Mexico, $6 one year, $9 two years, all others $15 for one year, payable in advance and postage paid. To railroad employees elsewhere in the western hemisphere, $10 a year. In other countries, $15 a year. Single copies, 60¢ except special issues. Address all subscriptions, changes of address and correspondence concerning them to Subscription Dept., Railway Age, Emmett St., Bristol, Conn. 06010.
Change of address should reach us three weeks in advance of next issue date. Send old address with new, enclosing, if possible, your address label. Post Office will not forward copies unless you provide extra postage.

Circulation Dept.: John Rogers, Director of Circulation, 30 Church St., New York, N.Y. 10007. POSTMASTER—SEND FORM 3579 TO EMMETT ST., BRISTOL, CONN. 06010.
Printed at the Periodical Press, Philadelphia, Pa. Second-class postage paid at Philadelphia, Pa. and at additional mailing offices.

Editorial and Executive Offices
New York, N.Y. 10007, 30 Church St.

ROBERT G. LEWIS: Publisher
LUTHER S. MILLER: Editor
FRED C. MILES: Executive Editor

Managing Editor: Edward F. Donlon
Transit Editor: Joseph Asher
Mechanical: F. N. Houser
Car & Locomotive Cyclopedia:
C. L. Combes
Art Director: Joel Petrower
Art Editor: Maurice H. Mates
Art Assistant: Thomas J. Pendergast
Editorial Assistant: June Meyer
Director of Research: H. B. Bolander
Librarian: Edith C. Stone
Production Manager: Fred B. Hecht
Manager—Contract Department:
Constance Nicolai

Editorial and Executive Offices
Chicago, Ill. 60604, 14 E. Jackson Blvd.

C. JAMES FISHER: Vice President—Sales
GUS WELTY: Senior Editor
Western Editor: Frank Malone
Mechanical: Robert D. Bartley
Engineering:
M. H. Dick R. E. Dove
Signaling & Communications:
Robert W. McKnight E. L. Abbott
Editorial Assistant: Wanda Brown

Washington, D.C. 20004,
National Press Bldg.
Washington Editor: Walter J. Taft

London, W.C. 2, England, 4, Talbot House; 98 St. Martin's Lane
International Editors:
Geoffrey Wilson John Levett

Contributing Editors:
Norman E. Gillespie
3205 Chelsea
Orlando, Florida 32803

Charles Layng
115 West Gore St.
Orlando, Florida 32806

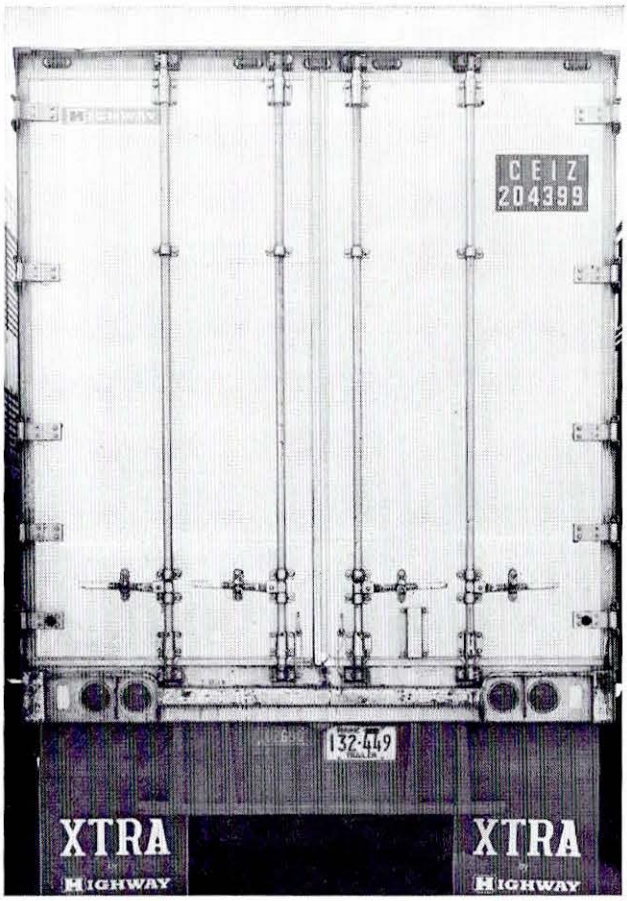
E. L. Woodward
876 Chattanooga Ave.
Pacific Palisades, Calif. 90272

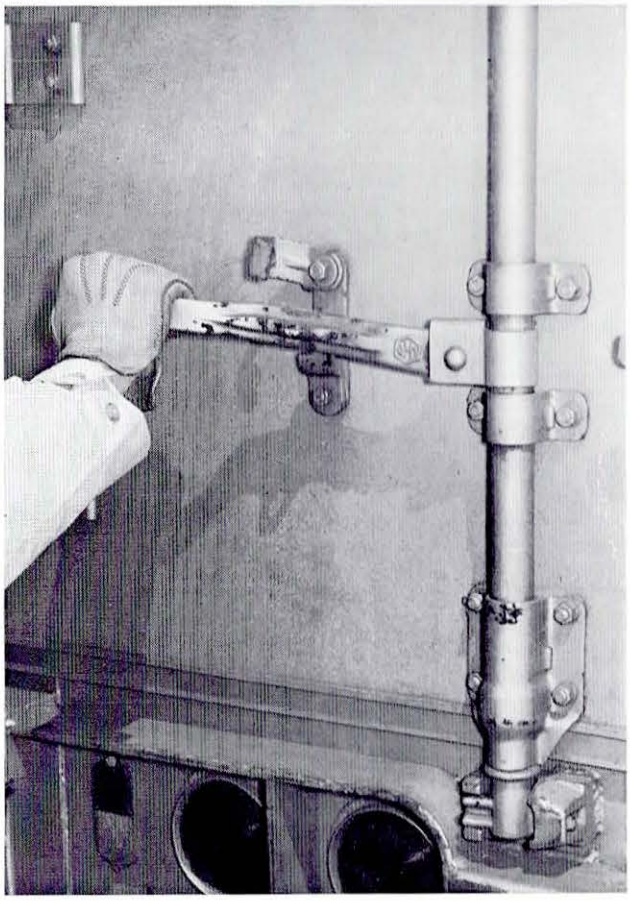
GEORGE DUSENBURY: Editorial Director

FOR LIST OF SALES OFFICES SEE ADVERTISING INDEX PAGE

Member of ABC RPI

RUGGED



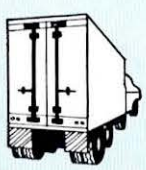


POWER-BRACE®

DOOR LOCKS THAT HOLD TIGHTER/PREVENT RACKING

Miner POWER-BRACE Door Locks are ready for immediate shipment. You can get the very best in quality, assuring you extra strength, durability, stability, and anti-racking, by insisting on Miner "POWER-BRACE" Door Locks. The H-V, shown above, offers leverage locking principle for extra stability and bracing action. Exclusive patented retainer feature in POWER-BRACE holds seals and padlocks flush with door for maximum protection against damage and break-ins. Miner's specialized manufacturing know-how and quality assures proper protection to your equipment and lading. Order from our extensive stocks for prompt delivery you can count on.

DOOR FASTENERS THAT MAKE THE SAME DOOR DIFFERENT

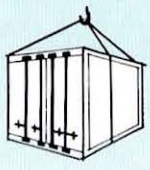


Write for further details:

W. H. MINER, INC.

209 S. LaSalle — Rookery Building
Chicago

*T.M. of W. H. MINER, INC.



LOCKING BARS FOR CONTAINERS, TRAILERS, VANS, TRUCKS, AND MOTOR TRUCK BODIES.

Circle 5 on coupon page 85

SHORT AND SIGNIFICANT

CN demonstrates automation on Slave Lake line

Push-button railroading on the isolated Great Slave Lake line in northern Canada has been shown off to newsmen and railroaders by the Canadian National. The automated train system, designed by Westinghouse Air Brake, is in operation on a portion of the 430-mile route, which runs through northern Alberta and the Northwest Territories to the Pine Point Mine on Great Slave Lake. The experimental system regulates power and braking functions by means of a computer device mounted in the locomotive, and coils at strategic points between the rails. It frees the man in the cab of routine decision making, allowing him to concentrate on the functioning of the locomotive and train equipment. The train can also be operated from the ground by remote control.

Dean of rail union chiefs steps down

A. Philip Randolph, one of the founders of the Brotherhood of Sleeping Car Porters and the only president the 43-year-old union has ever had, has retired. His successor, elected by delegates to the union's recent convention, is C. L. Dellums. Among the many tributes to the veteran unionist and civil rights leader was one from President Johnson: Few men, the President said, "have had a more profound effect upon the social consciousness of Americans in this century. . . . His courage, his wisdom and his eloquent voice have been instruments of progress and justice for black people throughout our land. Where there was wrong, he sought to right it. Where there was bitterness, he sought to soothe it. Where there was hatred, he sought to end it." Randolph, in the keynote to his last convention as president, hailed the gains made by the union: "The brotherhood gave the porter, and incidentally the Negro workers as a whole, a sense of racial and class identity and pride."

Illinois starts rail safety investigation

The Illinois Commerce Commission is beginning a broad rail-safety probe, with the opening hearings now scheduled for Sept. 26 in Chicago. The commission's order calls for a staff investigation of railroad "operating practices and condition of equipment, track, right of way and other facilities . . . which may contribute to or adversely affect safety to their passengers, employees and the public." During the investigation, the commission wants to hear testimony on weight, age and wear of rail; condition of ties and fastenings; condition of ballast; drainage; inspection procedures; rail fissure detection; programs for track renewal, and weed and brush removal. In the equipment area, it wants specifics on inspection and maintenance; mileage between inspections; maintenance of wheels and flanges; overheated bearing and dragging-equipment detection, and maximum and minimum weight.

Union Tank reports "greatest growth period"

Since January 1966, Union Tank Car Co. has invested $100 million in the construction of new tank cars added to its leased fleet, President J. W. Van Gorkom disclosed in a Sept. 12 address before the New York Society of Security Analysts. He said this was "the greatest growth period in the history of the company." As for the future, UT's chief said "the demand for new cars continues."

British accent will be strong at Baltimore show

Twenty-one British companies and port authorities will participate in exhibits at the Container Services and Equipment Exposition in Baltimore Oct. 28-Nov. 1. Containers in various makes and sizes, as well as handling machinery, will be featured. Ports to be represented include London, Liverpool, Bristol, Greenock, Southampton, Hull and Newport. Four Britons will take a leading role in the symposium accompanying the exposition—Dudley Perkins, director-general of the Port of London Authority; R.S.F. Edwards, director-general of the Mersey Docks and Harbour Board; Capt. G. R. Williams, a port operations consultant; and G. N. Bowman-Shaw, chairman of Lancer Boss Ltd.

MONDAY MORNING REPORT

THE BUDGET—AND ITS GOALS

It's internecine-warfare time again in railroad GHQs. It's budget-planning time, the time when unlimited demands are placed upon limited dollars. It's a time that tries men's souls. A time that forces the toughest of decisions upon top management. It's a time, a once-in-a-year time, when it becomes possible to judge railroads on the basis of both long- and short-range goals.

RAILROAD DOLLAR-PLANNING GETS LOW MARKS...

Railroads, as it happens, have a less-than-good reputation for budgeting. There is, still, a strong tendency to look at a railroad budget as a thing which is only as good as last month's revenues. And there are those who refuse to put any faith whatsoever in railroad budgeting until the dollars are right there on the line. It's an over-simplified fact, but still a fact, that freight cars (aside from more-or-less standard TTX cars) are almost never available off-the-shelf.

BUT PLANNING MUST BE THE PRIMARY OBJECTIVE

The key point is one made recently by Southern Pacific President B. F. Biaggini: "As we move through the budgeting process, we must do everything we can to *plan* for progress. This is the prime function of management, which must construct a budget for the purpose just as the architect must draw a blueprint for his building."

THE KEY TO PLANNING—LONG-RANGE IMPROVEMENT

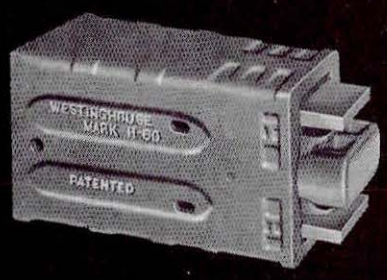
Under present circumstances, Biaggini emphasizes, "railroads, faced with having to generate most of their capital internally, must plan, through their budgets, for a continuing improvement in profits in order to demonstrate a fair return on investment"—the kind of return which will make railroads more attractive to investors. This is vital, because regulatory commissions today "do not appear to appreciate the sensitivity of the highly volatile railroad revenues to the business cycle and the urgent need of railroads for a sustained accumulation of capital with which to make investments in modernized facilities which would enable them to win the business that, inherently, they could perform at lowest cost to the customer."

CHANGE IS NEEDED, BUT IN THE MEANTIME...

So the assignment seems to be two-fold: There is the need to win recognition from the regulators that certain things must be done, if a strong railroad industry is to be maintained. Meanwhile, there is the need for railroad budgeters to do their job as never before—the job they're doing right now.

IMPACT PROTECTION

for your cars and ladings



MARK H-60

MARK H-100

CARDWELL WESTINGHOUSE *hydraulic-friction* DRAFT GEARS

The Westinghouse Mark H-60 and the Mark H-100 Draft Gears combine hydraulics and friction to provide superior impact protection for your cars and ladings. The velocity-sensitive hydraulic mechanism automatically adjusts itself to impacts with heavy or light loads, high or low velocities. At the same time, the sill force is kept within safe limits. In service since 1963, performance results are excellent!

The Mark H-60 fits all cars having the new standard 17-3/4-inch striker and 24-5/8-inch pocket, travel 3-1/4-inches. The Mark H-100 fits the alternate standard A.A.R. 36-inch pocket using an alternate standard 25-inch coupler, travel 4-3/4-inches.

For superior impact protection for your cars and ladings, Specify Mark H-60 or Mark H-100!

CARDWELL WESTINGHOUSE COMPANY

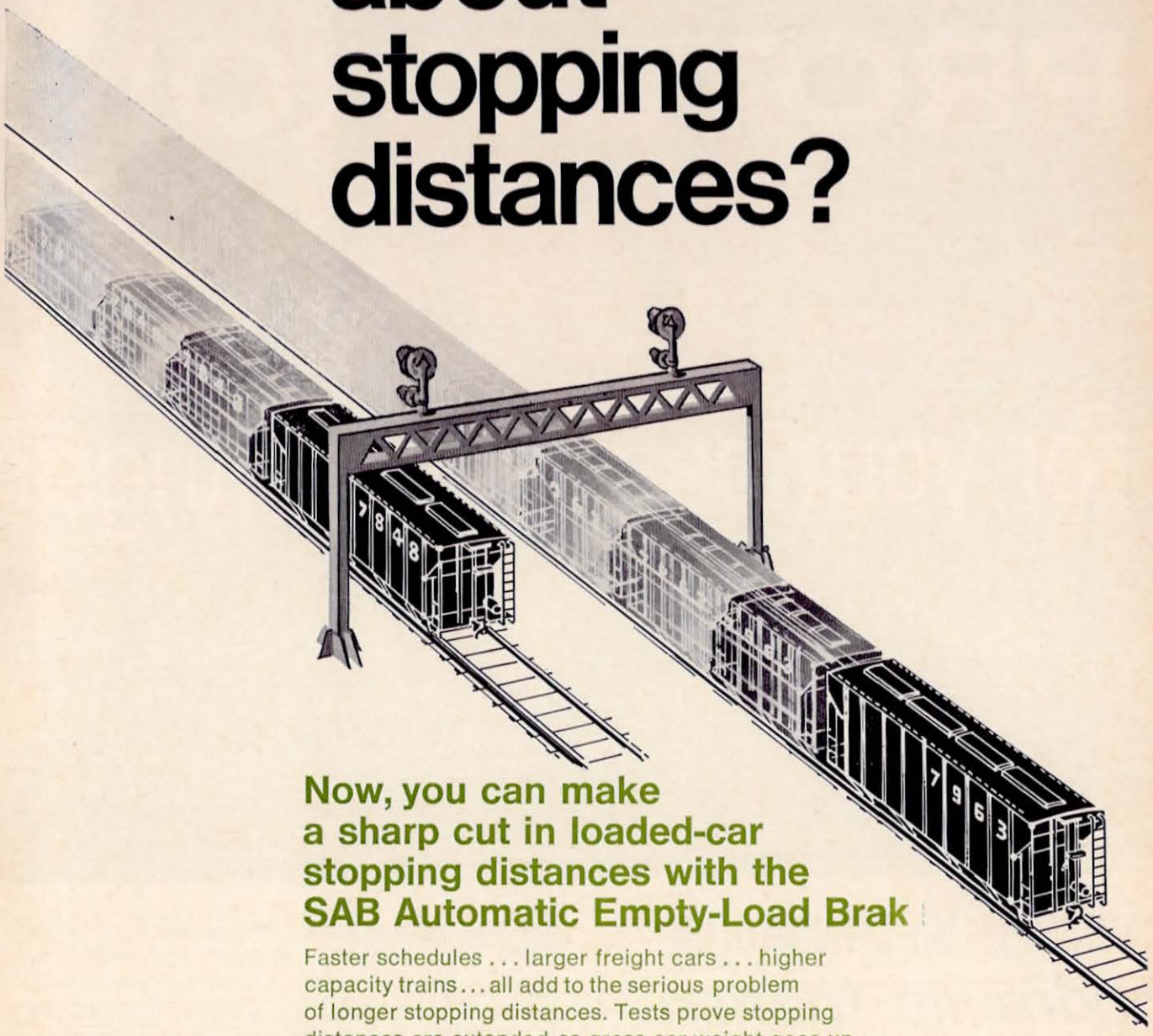
332 SOUTH MICHIGAN AVENUE, CHICAGO, ILLINOIS 60604, U.S.A. • TELEPHONE: 312-427-5051

INTERNATIONAL DIVISION SAME ADDRESS

CANADIAN CARDWELL CO. LTD., MONTREAL 2, QUEBEC

Circle 6 on coupon page 85

Concerned about stopping distances?



Now, you can make a sharp cut in loaded-car stopping distances with the SAB Automatic Empty-Load Brak

Faster schedules . . . larger freight cars . . . higher capacity trains . . . all add to the serious problem of longer stopping distances. Tests prove stopping distances are extended as gross car weight goes up. This holds true even when cars are braked under identical circumstances. To solve this problem, SAB offers an Automatic Empty-Load Brake to multiply braking force on loaded cars. Mounted in the foundation brake rigging, it distinguishes between "empty" and "loaded" weights before distributing brake cylinder force to the braking system. With this simple mechanical device each loaded car will be doing more of its share of braking.

See the SAB Automatic Empty-Load Brake, Booths 110-111, Coordinated Mechanical Meeting Exhibit, Sherman House, Chicago—September 29-October 2, 1968, or write for descriptive literature.

AMERICAN SAB COMPANY, INC.

332 South Michigan Avenue, Chicago, Illinois 60604
In Canada: International Equipment Company, Limited.
In Mexico: Compañia SKF Golfo Y Caribe, S.A.

MEMBER RPI

RAILWAY AGE
THE TRANSPORTATION WEEKLY

September 23, 1968

WEEK AT A GLANCE

ICC Examiner gives nod to SCL-P&N union

Merger of the 150-mile Piedmont & Northern into the 9,300-mile Seaboard Coast Line has been recommended by ICC Examiner Paul J. Clerman. Barring exceptions, the merger can be consummated in mid-October. The examiner's approval came 10 months after directors of the two companies agreed on a merger plan (RA, Nov. 20, 1967, p. 36) and seven months after the plan won shareholder approval. P&N's North Carolina division will become part of SCL's Monroe subdivision, under the superintendent at Raleigh, and the South Carolina division will become a new subdivision under SCL's superintendent at Florence. About two-thirds of P&N's mileage is in South Carolina, and one-third in North Carolina. In 1967, the freight-only P&N had gross revenues of $6.8 million. The examiner put P&N's "going concern value" at $28,168,000.

On the way: A new generation of locomotives

Development of "third generation" high-horsepower locomotives is reportedly getting major attention from the domestic builders. Industry sources indicate that single-engine diesel units rated at 4000 hp could be added to builders' catalogs in the not-too-distant future; ratings even higher may be in the offing. Manufacturers have been encouraged by the railroad response to present 3300- and 3600-hp "second generation" models which accounted for over 35% of all units ordered in 1967; the popularity of the big locomotives continues unabated in 1968.

Hayden, Stone sees '68 rail net of $685 million

How are the railroads doing? Considering the poor start they made this year, not too badly—in the view of the New York investment firm of Hayden, Stone, which issued its highly-regarded annual report on railroads last week. As Hayden, Stone's analysts Pierre Bretey and Karl Ziebarth see it, the railroads will net around $685 million this year. Noting that first-half '68 produced a $284-million increase in freight revenues, the Hayden, Stone report goes on to construct the full year this way:

Heavier shipments, especially in building materials, suggest a second-half freight-revenue gain of $220 million; a 3% rate increase will add $131 million. A projected increase of $635 million for the year as a whole will be offset by a drop of $155 million in passenger and other revenues, for a net gain of $480 million, and a gross for the year of $10.8 billion—which would be a new record. However, "total operating expenses, which in the first half rose by some $160 million or by 3.3%, may well increase by some $200 million for the balance of 1968, reflecting recently granted increases in wages and fringes of $135 million and increased depreciation charges, higher equipment rentals, and higher payroll taxes of $65 million. Thus railway operating income in this year's second half should expand by approximately $84 million, as compared with a corresponding rise of only $36 million in the first half."

ESTIMATED INCOME CHANGES 1968/1967

	Preliminary First Half	Estimated Second Half	Estimated Full Year
	(millions)		
Freight Revenue	+$284	+$351	+$635
Passenger/ Other Revenue	− 88	− 67	− 155
Total Revenue	+ 196	+ 284	+ 480
Operating Expenses	+ 160	+ 200	+ 360
Net Railway Operating Income	+ 36	+ 84	+ 120
Other Income, Taxes, and Charges	− 11	+ 21	+ 10
Net Income	+$ 25	+$105	+$130
		1967 Net Income	555
		1968 Net Income	$685E

With anticipated changes in the category of other income, taxes and charges figured in, all of this would produce an increase of $105 million in net income for the second half, for a full-year gain of $130 million—or a total net of $685 million. Hayden, Stone's analysts concede that their forecast is subject to certain imponderables—but note that any adjustment could be upward as well as downward.

GUS WELTY

LINES ON LABOR

NOBODY LIKES a double-standard. And it's widely reported that you can't have your cake, and eat it too. But, like it or not, there does appear to be a double-standard in rail management-labor propagandizing. And, possible or not, rail unions seem to enjoy an unlimited cake supply. It might be called the double-cake-standard—this recent situation in which Richmond, Fredericksburg & Potomac has been whacked on the knuckles for the way it went about communicating with its yardmen in the crew-consist dispute with the Brotherhood of Railroad Trainmen.

RF&P IS BY NO MEANS the only road which has taken its side of the argument direct to the employees. But RF&P was the road that got hit, with a BRT lawsuit. And a federal district judge came to the "inevitable conclusion" that some of RF&P's communications contained "a subtle, if not direct, effort to influence . . . employees in their choice of representatives." This kind of effort isn't permitted, under the Railway Labor Act. And so the judge put RF&P under restraint —pointing out at the same time that the railroad does have "a perfect right to engage in communications with [its] own employees . . . a perfect right to keep employees advised."

THIS IS, of course, what would be known as a "judgment call" in baseball. The Act says merely that "neither party shall in any way interfere with, influence or coerce the other in its choice of representatives." It's up to the courts to determine what constitutes influence or interference or coercion.

TO A LAYMAN, that's where the double-cake-standard seems to come in. A labor organization seems free to talk to its members—and, indirectly or otherwise, to management and the public—with nothing short of the libel laws to fear. Union publications can and do downgrade, knock, chastise and hold up to ridicule the companies and the managements for which union members work. Now, rather obviously, the railroads wouldn't can a Doc Wolfe or a Jack Hiltz because of anything they read in union publications. So, the organizations can say what they choose—and no real element of interference, influence or coercion can be assumed. All that these communications might do is to poison the minds of the members. They don't coerce management, so they're more-or-less exempt. Management hires and fires its representatives. Union members elect theirs. And the reasoning seems to be that the elected fellow gets the break. What does it all mean? To a layman, again, it means that unions can say what they please—but management had better be damn careful.

Firemen, carriers agree on wages

General chairmen of the Brotherhood of Locomotive Firemen & Enginemen have ratified a new wage agreement, calling for across-the-board percentage increases totaling 11% in four steps over a two-year period. Other wage adjustments and improvements in vacation, holiday and insurance provisions are also covered. And, as in agreements previously signed, with most other major unions, there is a no-strike moratorium. BLF&E President H. E. Gilbert said the agreement, "hammered out at the bargaining table . . . proves again that solutions can be found to disputes if the parties have a sincere will to find those solutions." He went on to charge that because of a lack "of that same type of collective bargaining, we are still miles apart on a settlement in the rules dispute . . . A new crisis is brewing."

TCEU, Clerks move toward a merger

The ops aren't the only rail labor organizations heading into a merger referendum. Unification may also be coming up for the largest of all rail unions, the Brotherhood of Railway and Airline Clerks, and the Transportation-Communication Employees Union. TCEU was scheduled to act on a BRAC merger proposal at its 1968 convention —but delegates decided instead to look the merger-prospect field over more carefully (RA, July 29, p. 11). Nothing more developed in the weeks following the convention, and TCEU's grand and system officers have now voted to approve the BRAC-TCEU plan and to submit it to a membership referendum. Ballot material will probably go out to TCEU people in early October.

Ogden Corp. to acquire Ortner

Ortner Freight Car Co., a builder of rapid discharge coal hopper cars and other specialized rolling stock, will be acquired by the Ogden Corp. of New York. Ortner has plants at Covington, Ky., and Cincinnati, Ohio. John B. Cogan, head of Ogden Engineered Transportation, said the acquisition "provides an important capability in the design of special cars for rail transportation links that will be an important part of optimized transportation systems to be developed in the future."

THE STRONG ONE

GSI One-Piece Underframe End

Most failures in fabricated underframes occur in the bolster center sill area.

GSI cast steel underframe ends eliminate this problem.

The one-piece steel casting gives you maximum strength in the critical area. And it eliminates the basic cause of failure . . . the stress concentrations inherent in fabricated designs.

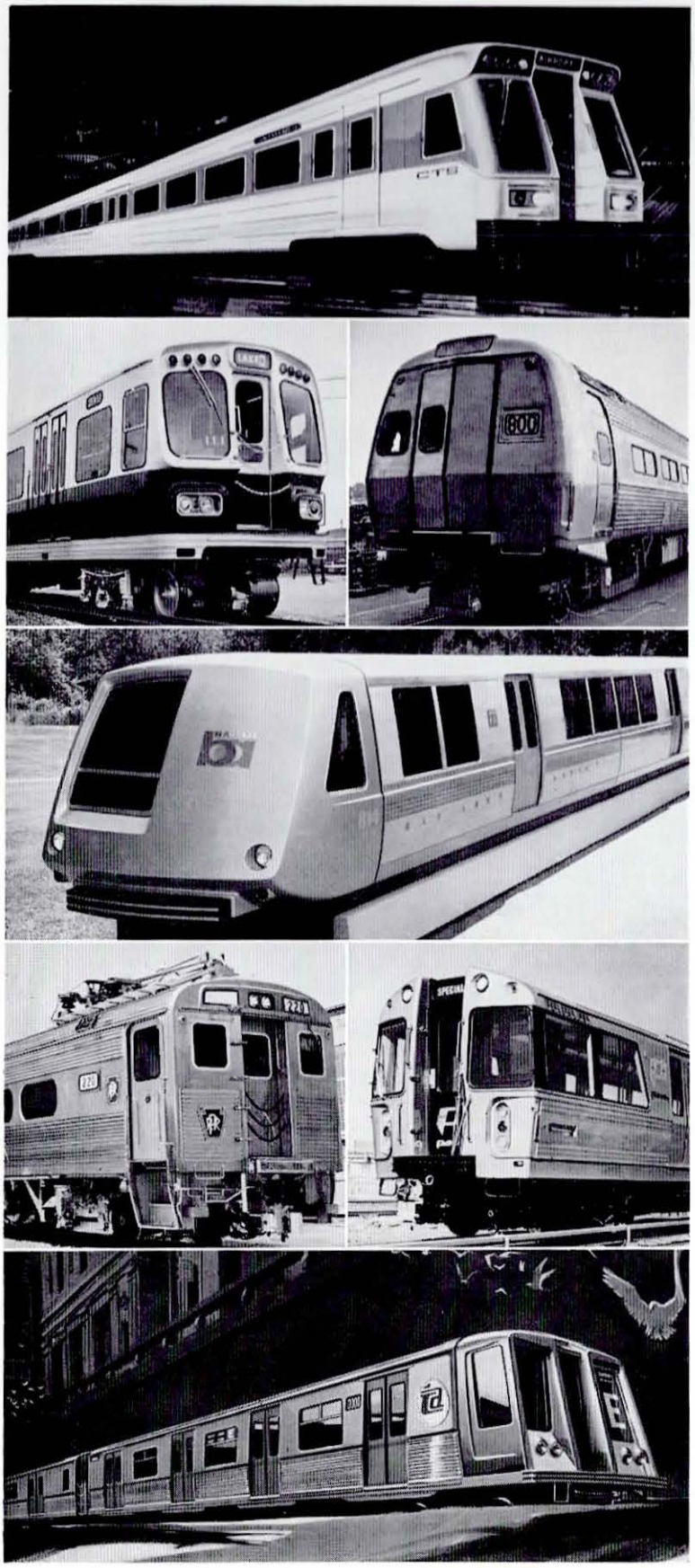
A STRONG POINT... for new cars and for old cars you rebuild.

GENERAL STEEL INDUSTRIES INC.

CASTINGS DIVISION | GSI

Granite City, Ill. • Philadelphia, Pa. • San Francisco, Calif.

Circle 8 on coupon page 85



TREND SETTING RAPID TRANSIT CARS RELY ON

Adlake
SINCE 1857

QUALITY SASH AND COMPONENTS

- Curved and Flat Sash
- Operator's Curtains, Fixtures
- Door Locks, Hardware
- Sash Trim
- Luggage Racks
- Stanchions, Windscreens
- Marker and Headlights
- Indicator Lights
- Sun Visors
- Diaphragms, Safety Gates

See us at the Railway Supply Show BOOTH 164-165 Sept. 29-Oct. 2 Sherman House, Chicago

As one of the few completely integrated manufacturers, Adlake can provide one-source responsibility for almost all your transportation car-component needs . . . meeting your demands with a program of total quality control.

Adlake SINCE 1857

THE ADAMS & WESTLAKE COMPANY

A SUBSIDIARY OF **ALLIED** *PRODUCTS CORPORATION*

ELKHART, INDIANA 46514 • AC 219 • 264-1141

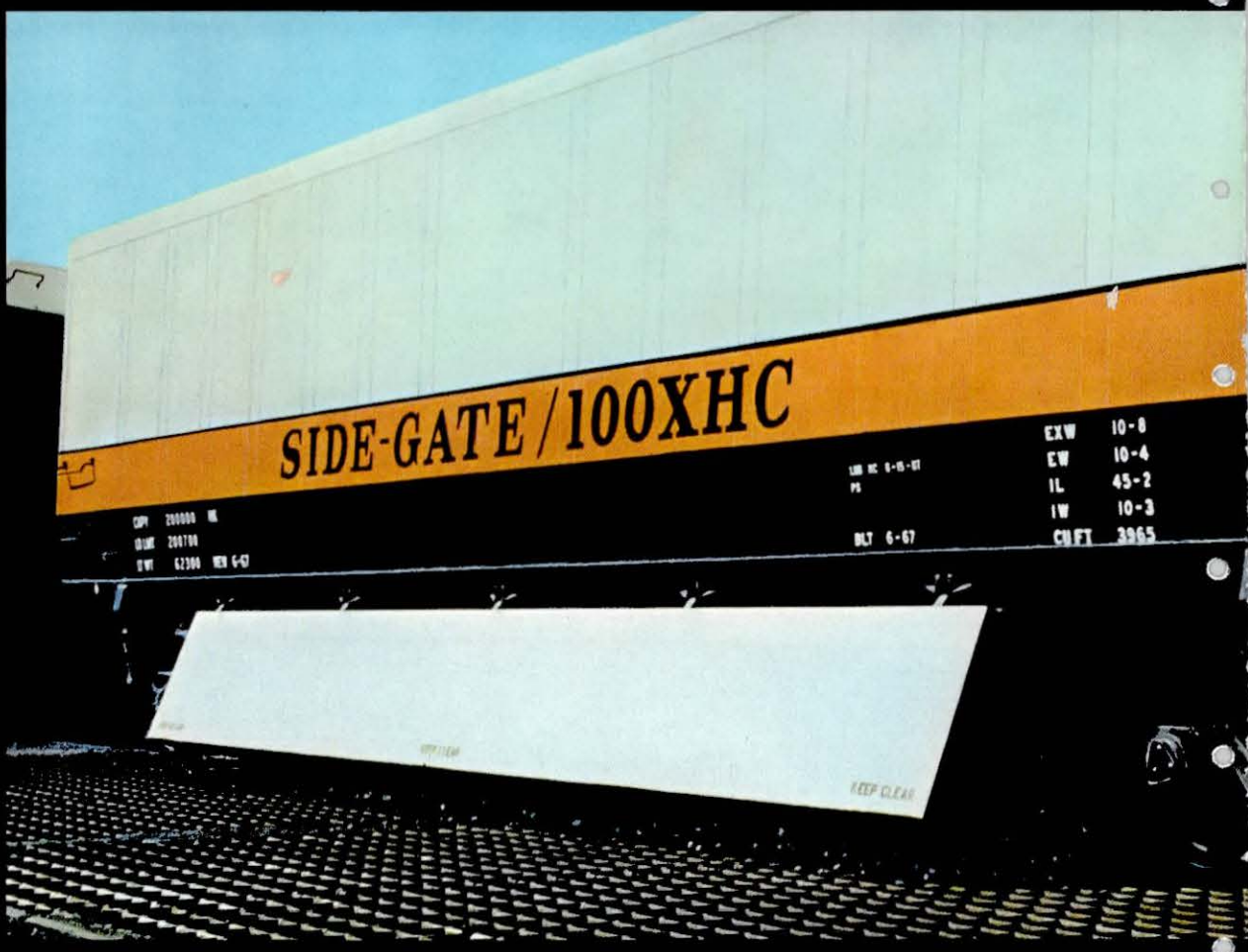
TRANSPORTATION EQUIPMENT · CONTRACT MANUFACTURING · MERCURY RELAYS · WINDOWS & CURTAIN WALLS · DOORS & ENTRANCES

Take a hard look at Ex-Cell-O F pins.

What you'll see are the toughest railroad pins in the industry. The only ones made to be forgotten. You get the most out of them because we put the best into them. Precision formed of high carbon steel and induction hardened to ⅛" case, Rockwell C60, in the bearing area only. We chamfer the ends to provide lead edge. Drill and chamfer the cotter holes to eliminate cotter pin shearing. Add a zinc coat (a dry lubricant) to prevent galling and freezing. If they cost a little more, remember: F pins won't let you down. Railway Products, Ex-Cell-O Corp., Box 386, Detroit, Michigan 48232.

XLO®
EX-CELL-O CORPORATION

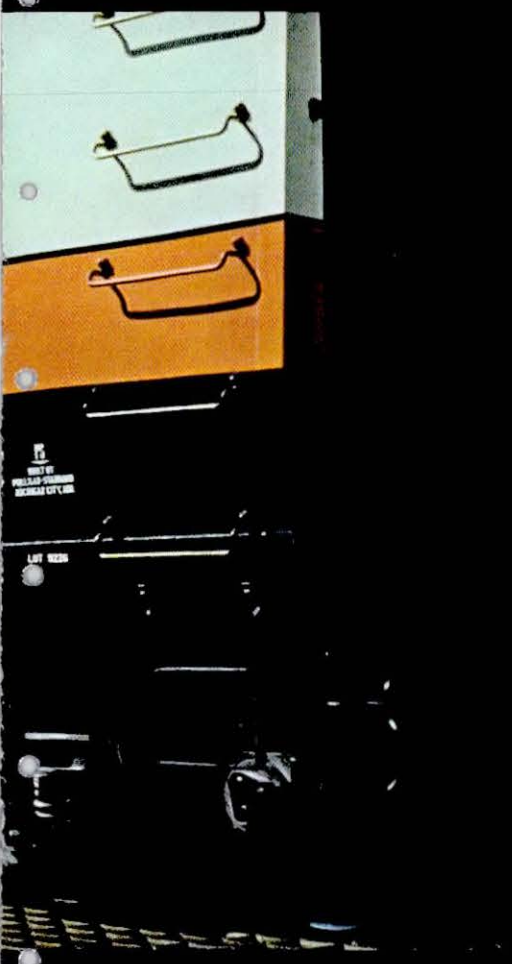
Circle 10 on coupon page 85



RPI

There's probably one other company that could build this car.

The second time.



Developing a side-discharge system that automatically empties a whole coal car in seconds is a problem few carbuilding companies can ably solve.

Pullman-Standard can.

Our new Champ Carry Technical Center is more than a showplace of railroad progress. It is a brain center for the carbuilding industry's finest scientists and engineers, whose problem-solving capability is augmented by the most advanced computer technology.

This is the reason Pullman-Standard was first with this revolutionary side-discharge hopper car.

Another company may build it, too. The second time.

Pullman-Standard
WORLD'S LARGEST RAIL CAR MAKER
200 South Michigan Avenue, Chicago, Illinois 60604

A Division of Pullman Incorporated

Philadelphia Commuters Gain 20 More Stainless Steel Cars

South Eastern Pennsylvania Transportation Authority had added 20 new nickel stainless steel commuter cars in a continuing modernization of the Philadelphia area rapid transit system. These cars, designed and built by St. Louis Car division of General Steel Industries, Inc., are lightweight design to permit operation in the 85mph range...with lower power requirements.

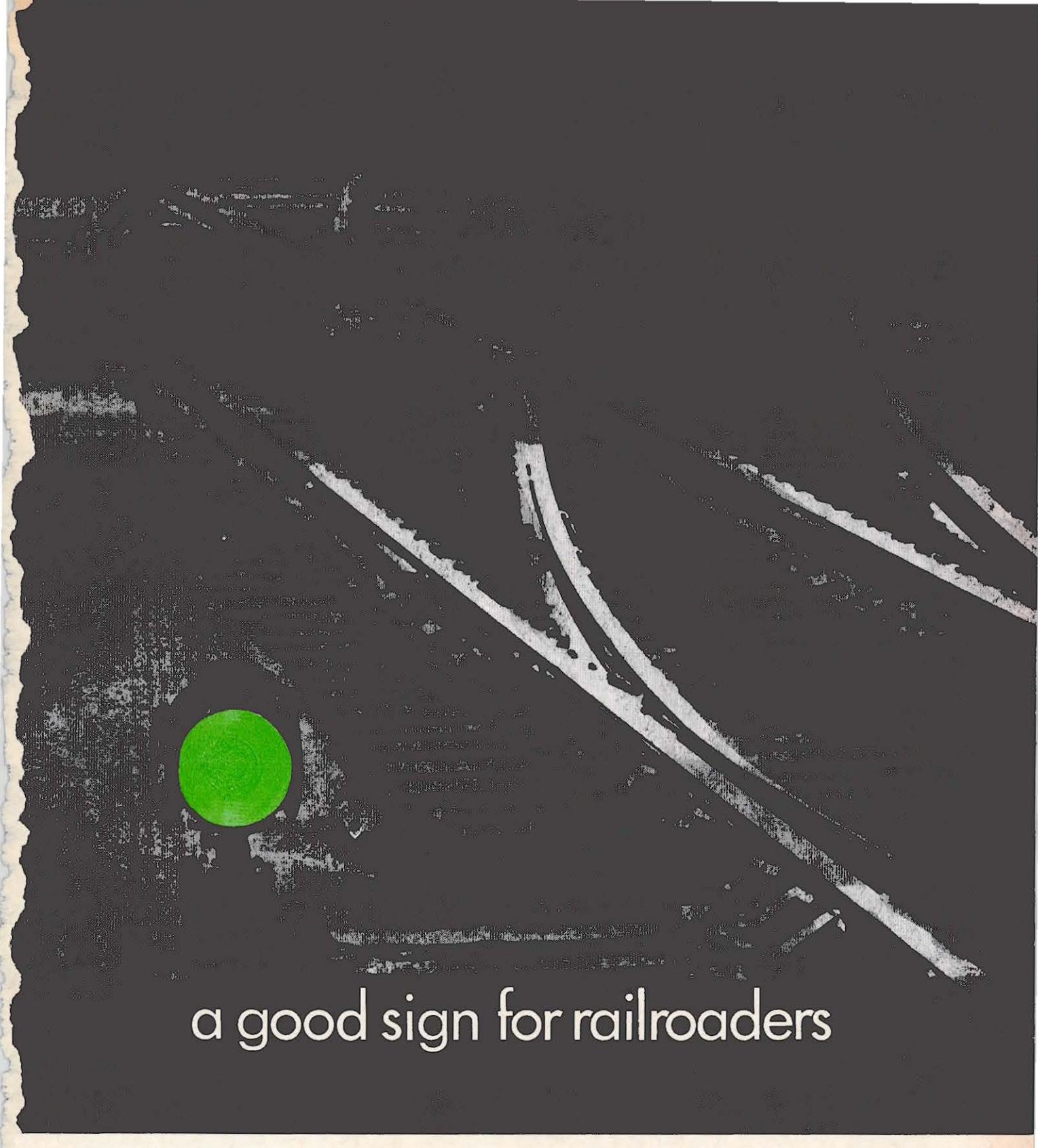
They're nickel stainless steel for strength, durability, low maintenance...and to attract more riders to the transit system.

What's more, they're safe. Nickel stainless steel combines high strength with good ductility. Passengers are better protected.

For more information, write for our brochure, "Nickel Stainless Steel...The Modern Material for Modern Transit". The International Nickel Co., Inc. 67 Wall Street, New York, N.Y. 10005.

INTERNATIONAL NICKEL

Circle 59 on coupon page 85



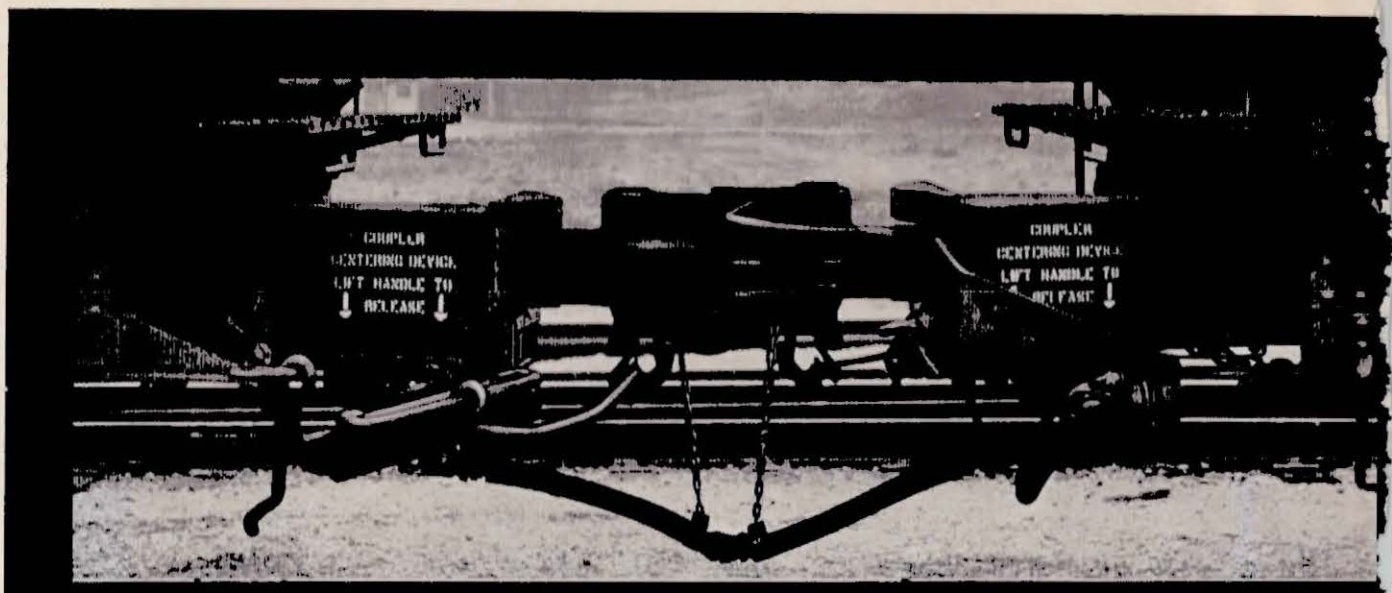
a good sign for railroaders

Whether it's in the switching yard or on an open stretch of track, a green light on a switch spells out a good sign for any railroader. And the familiar Edgewater (E) on wrought steel wheels tells a railroader he's equipped with the most dependable wheels for his rolling stock.

Edgewater wrought steel wheels give you extra service because they're made by a highly developed forging and rolling technique. The metal's tough and dense, providing the all-important stamina to withstand today's heavier loads and higher speeds. Edgewater Corporation, P. O. Box 478, Pittsburgh, Pa. 15230.

when you want the highest quality steel wheels, rely on this sign

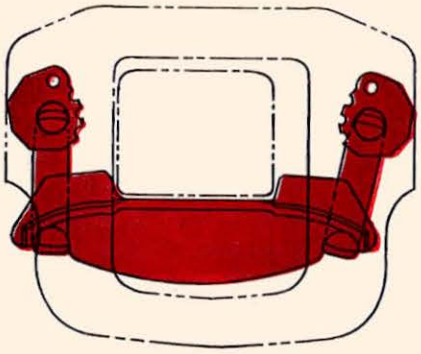
Circle 13 on coupon page 85



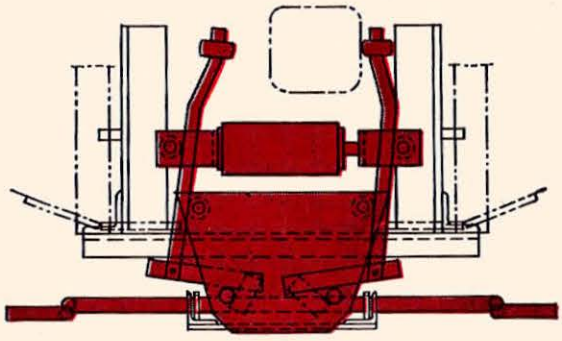
Reduce car damage with these Standard Coupler Centering Devices

By keeping a free coupler centered in relation to the end sill, they minimize the damage brought on by the passing of couplers.

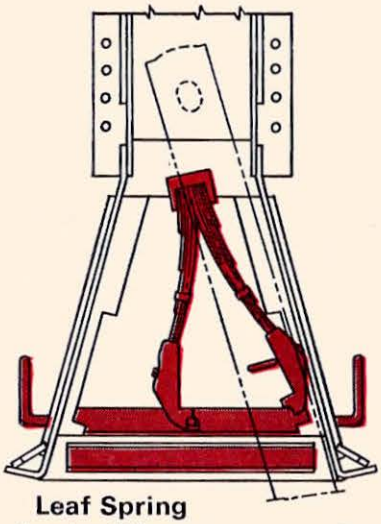
A Complete Family of Standard Centering Devices to Meet All Car Conditions



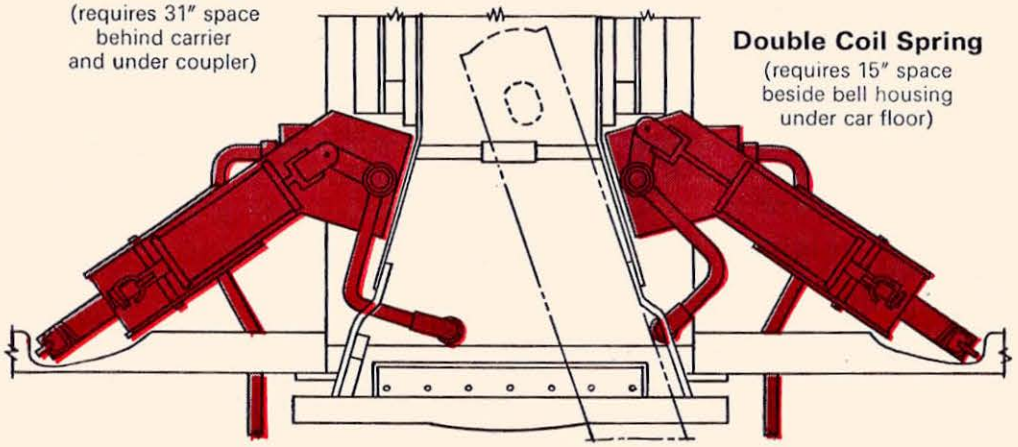
Swing Type
(includes carrier)



Single Coil Spring
(requires 6" space
behind carrier and under coupler)



Leaf Spring
(requires 31" space
behind carrier
and under coupler)



Double Coil Spring
(requires 15" space
beside bell housing
under car floor)

Today's longer freight cars, with their long-shank couplers and wide-opening strikers, have required new centering device designs to meet the many car conditions. These new designs afford the same protection from damage that the Standard Centering Device has provided for many years—protection that is even more important with today's wide-swing couplers.

With a Standard Coupler Centering Device, the risk of passing couplers is reduced to a minimum. The device keeps a free coupler centered in relation to the end sill. If the coupler is swung wide when disengaged from another, the device instantly returns it to center position.

When the coupler is coupled to another car, the centering device permits all movements essential to safe operation . . . sideways, and up and down.

In using a wide-swing coupler device, there will be occasions when coupler alignment requires that a free coupler be moved off center. If so, a pull on the handle releases the centering device. As the cars move, and the coupler returns to center position, the device automatically re-engages.

Standard Coupler Centering Devices are supplied in four to six components, together with all necessary hardware and simple instructions for installing.

The choice of designs will hinge upon your particular application. Your Standard representative will be glad to recommend the best choice for the job at hand—and to answer any questions you may have.

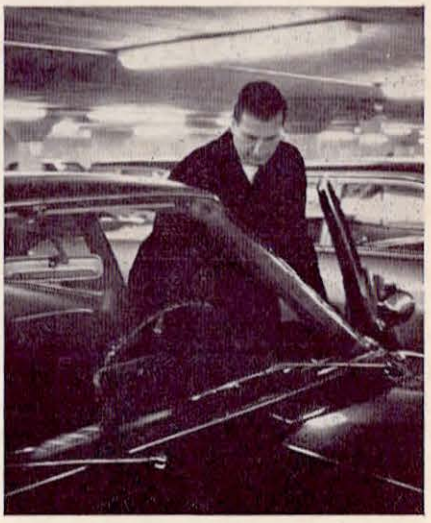
STANDARD RAILWAY EQUIPMENT
division of STANRAY CORPORATION
Hammond, Indiana • Chicago

MEMBER RPI RAILWAY PROGRESS INSTITUTE

Circle 14 on coupon page 85

This is ALCO's Bill Cunningham.

He will live, **think,** **talk,**



and sell railroad products **anytime.**

Bill says railroad products is a full-time job—if you do it right. And Bill does.

He's an expert on railroad operations—especially when it comes to maintenance problems. And can tell you which parts will give you the best service, at the lowest possible cost.

Bill is likely to save you money in other ways too. Take ALCO's 24-hour delivery service, for example. We stock your inventory of ALCO railroad products in one of our strategically located warehouses. And when you start to run low, just call ALCO. We'll ship the parts you need when and where you need them—usually in 24 hours or less.

ALCO supplies railroads with a complete line of AAR certified products. Hot wound coil cushion underframe and truck springs. Elliptic springs—from single to sextuple. Liners, wear plates and spring plates. Locomotive axles and tires. ALCOLIDS—the simplest, most dependable journal box lids ever made.

Want to see how ALCO builds dependability into all of their railroad products? Our new 10-minute sound, color, slide film presentation explains how in an interesting and factual manner.

Simply ask Bill Cunningham or your own ALCO salesman for a show and tell meeting on ALCO railroad products. He'll be glad to stop by—anytime.

ALCO

FORGE AND SPRING DIVISION
ALCO PRODUCTS, INC.
A Subsidiary of Worthington Corp.
LATROBE, PA. 15650
CHICAGO HEIGHTS, ILL. 60412

MEMBER—RAILWAY PROGRESS INSTITUTE

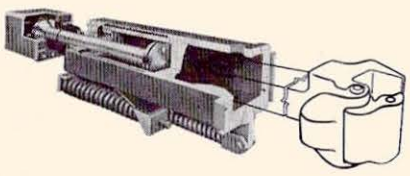
10 years from now
you might be able to buy another end-of-car cushioning unit as good as today's FreightMaster

Notice we said you might. But by then we'd have over 20 years of experience with end-of-car hydraulic cushioning. And experience is the valuable asset that everyone must earn . . . you can't buy it.

Too, there's little reason to wait that long for your cars and cargo to benefit from the more effective cushioning that FreightMaster provides. Cushioning that helps freight arrive undamaged at its destination. Cushioning that keeps cars rolling, day in and day out, by helping protect against damage to their structure.

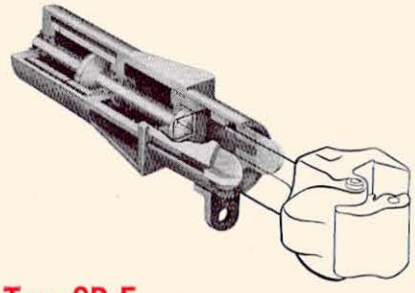
FreightMaster has the industry's widest selection of end-of-car cushioning units. There's one to fit your requirements. And behind every FreightMaster car set is our exclusive decade of over-the-rails experience.

Your own cushioning program can be ten years better tomorrow just by installing FreightMaster equipment TODAY.



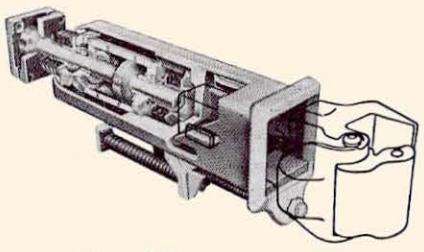
Type HD-E and F

Superior cushioning unit with 15″ hydraulic stroke. No other system matches its performance without adding thousands of pounds of extra weight.



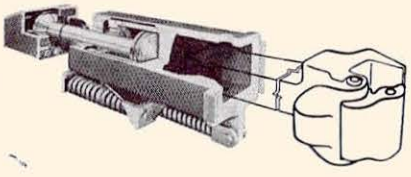
Type SP-E

Replaces standard draft gears in 24⅝″ pockets. Hydraulic cushioning stroke of 7″. Rip track installation upgrades car and cargo protection to a modern level.



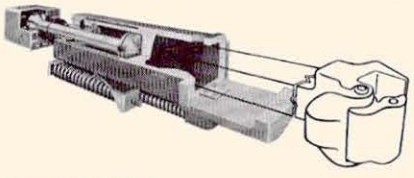
Type E and F

Modern end-of-car hydraulic cushioning started with these efficient units. Over 27,000 car sets are helping protect car and cargo for over 50 progressive railroads.



Type AR-F

Cushioning unit with 10″ stroke for Low-Deck Auto Rack Flat Cars where 60″ coupler is required. Performance identical to proven Type F units.



Type HD-FR

Outstanding 15″ stroke unit for long overhang cars requiring couplers with Type E heads, 43″ F style shanks and rigid coupler carrier. Same superior performance as Type HD units.

See FreightMaster's "Years ahead" CONCEPTS
BOOTHS 420-421 | SHERMAN HOUSE

FreightMaster®

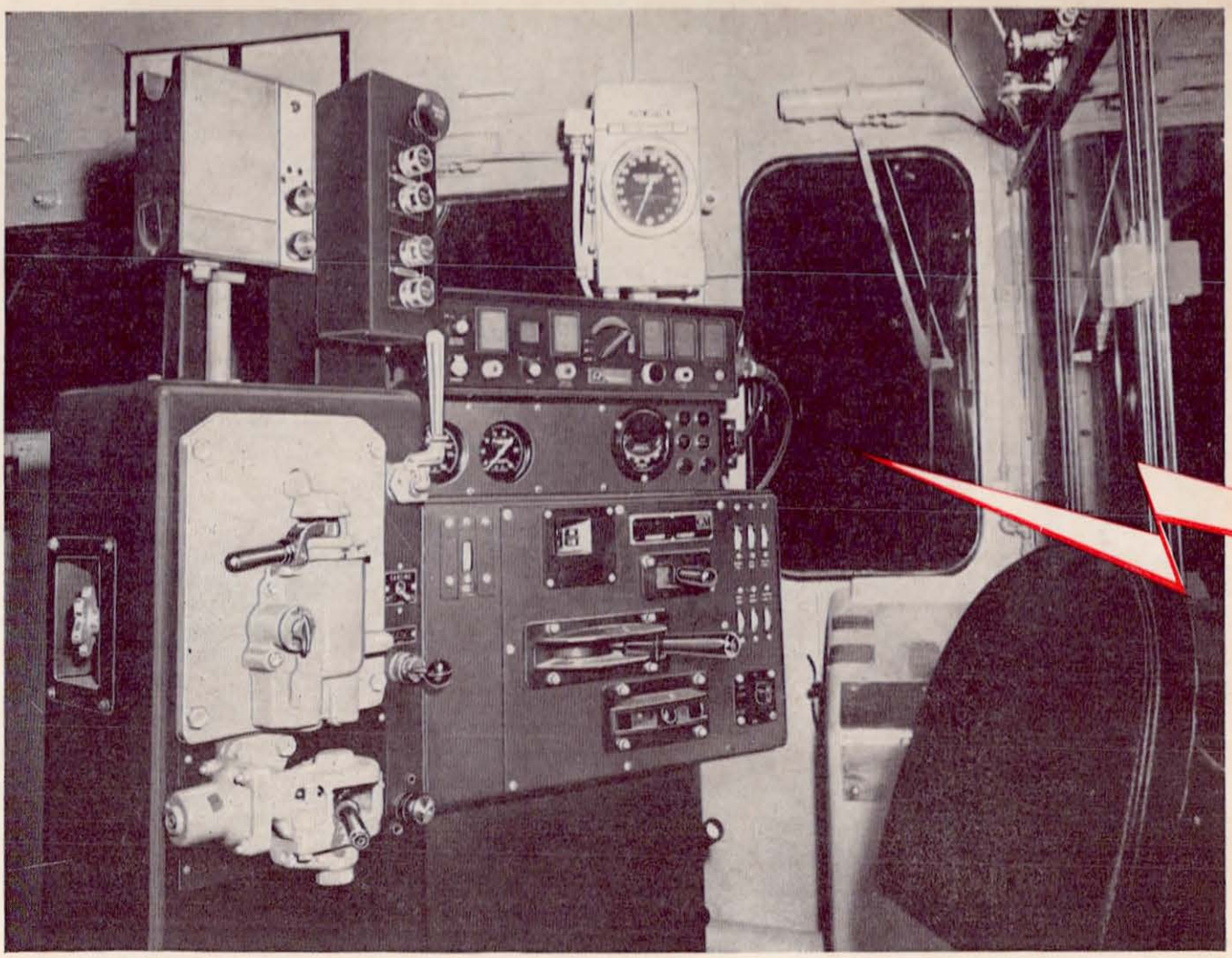
A DIVISION OF HALLIBURTON SERVICES

NEW CONCEPTS OF INCREASED PROTECTION FOR CARS AND CARGO THROUGH RESEARCH

424 W. Vickery Boulevard • Fort Worth, Texas 76101
In Canada: Hawker Siddeley Canada Ltd., Montreal
In Mexico: Materiales y Servicios Ferroviarios, S. A., Marconi Numero 2-37, Mexico 1, D. F.

MEMBER RPI

FreightMaster is 10 years ahead.



THE STORY YOU ARE ABOUT TO READ IS TRUE··· ONLY THE MOTIVE POWER HAS BEEN CHANGED TO PROTECT THE CARS.

Consider any train

The longer the train... The more horsepower required... the greater the advantages.

Two of the locomotive units are equipped with LOCOTROL*... the "MASTER" and the "SLAVE."

The "MASTER"... with the engineman's console... is in the lead and controls the head-end consist...

The "SLAVE"... buried deep in the train, controls all the units you choose to place in the trailing consist.

The "SLAVE" does what the "MASTER" does...

No faster... no slower... SIMULTANEOUSLY!

THE OBJECT...

Get the train over the road faster and smootner!

*LOCOTROL... Registered trademark of RADIATION INCORPORATED

LONG TRAINS ARE SHORT

with

LOCOTROL®

WHAT LOCOTROL DOES

Increases the efficiency of long train operation by simultaneous control of power and brakes on Slave and Lead locomotives.

Enables long trains to attain running speed faster for improved schedules.

Reduces yard time by speeding the terminal test.

Reduces stop distance by faster application of the brakes.

Reduces incidence of "break-in-twos."

Controls slack, with reduction of damage to cars and lading.

Saves vast amounts of time lost in maintenance and repairs, as well as transfer and reloading when cars are damaged.

Notch out the throttle...or apply the dynamic brake... and the "SLAVE" consist...with only LOCOTROL aboard...responds in kind.

Apply the air brakes or release them...the application or charge is initiated simultaneously at two locations...in three directions.

From the "MASTER" rearward...

From the "SLAVE" both forward and rearward.

Drawbar tension is greatly reduced because the power is "teamed" into two consists. The "pull" is no longer all from the front end. And in "braking"...the rear end need not run in on the front end while the brakes are coming on. Trains of 150 cars can be handled as smoothly and efficiently as 50 car trains.

This is why we say:

LONG TRAINS ARE SHORT WITH LOCOTROL.

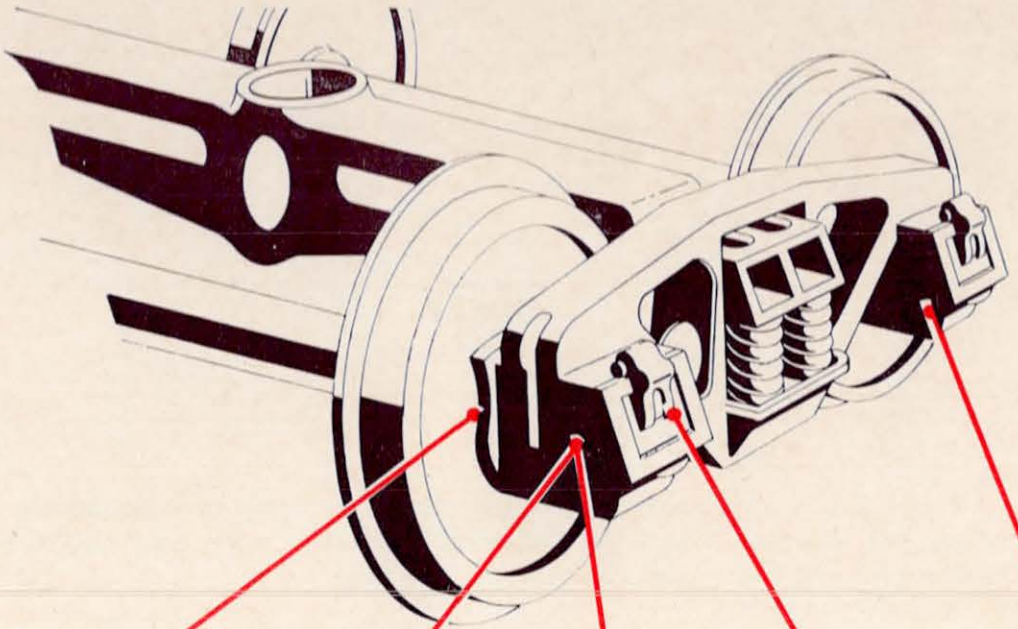
VISIT US — BOOTHS 207-208-209
Railway Supply Association Convention
Main Exhibit Hall
Hotel Sherman, Chicago

MEMBER RPI RAILWAY PROGRESS INSTITUTE

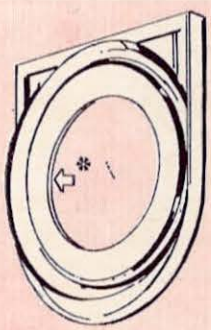
NEW YORK AIR BRAKE COMPANY
A UNIT OF GENERAL SIGNAL CORPORATION
230 PARK AVENUE · NEW YORK, N. Y. 10017

UNITY

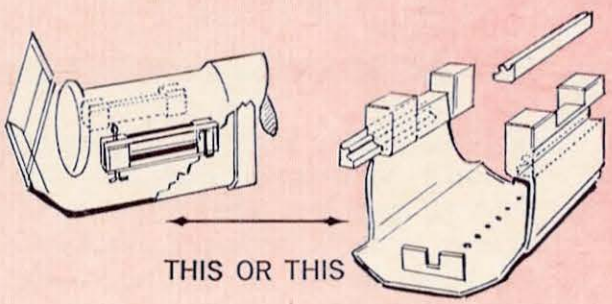
. . . introduces its fine family of service-proven products to meet today's high speed and high capacity railroading with a careful eye on your budget. If you are budget minded (and who isn't), we offer you our economy family package at a substantial savings on all of these items.



ATLAS
or PREMIER
LUBRICATORS

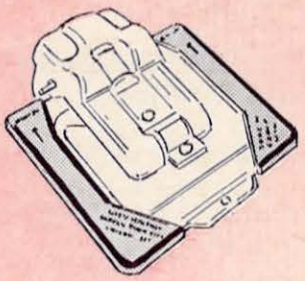


Service-proven "Robco" journal box rear seal; exclusive self-lubricating feature.*



Type "W" Journal Stop, double and single contact, for welded installation.

Service-proven "Security" insert journal stop for use in rib or non-rib type.



Unity Snap-on Easy-Ply lid seal; improved; double seals all journal box lids.

All Approved for Interchange Service

ECONOMIZE • Buy Unity's Family Package Plan

FOR COMPLETE DETAILS—WRITE OR PHONE

Unity RAILWAY SUPPLY CO., INC.

200 S. MICHIGAN AVENUE • PHONE 312—939-3438

CHICAGO, ILLINOIS 60604

SEE OUR DISPLAY BOOTH Nos. 158-159 SHERMAN HOUSE SEPT. 29-OCT. 3

Circle 18 on coupon page 85

In 1898 your problem was how to join two cars. In 1968 it's how to separate two million.

When railroad people decide to standardize something, you just know it's important.

After all, they've only done it a few times in the last 100 years.

The first in 1887, when they agreed on the gauge of the track.

The next was in 1898, when they decided to couple all cars the same way.

After that came air brakes, in 1907.

We take them for granted now. But these standards revolutionized railroading by making free interchange possible.

But some 2 million freight cars operate across North America now. And the big problem is separating your cars from the other guy's, and figuring out where they are.

So the Association of American Railroads established another standard: KarTrak* Automatic Car Identification System.

It consists of a coded label, a trackside scanner, and a decoder.

Among other things, it lets you keep track of your cars so you can use each one more often, minimize human error, and keep more accurate per diem accounting.

You'll handle more traffic. Deliver on time. Schedule more efficiently. And operate more economically.

By 1970, this label should be on every car in the country.

It may not increase the speed of your boxcars, but it'll sure get them back to you a lot faster.

Sylvania Information Systems, Commercial Electronics Division, Bedford, Mass. 01730.

SYLVANIA
A SUBSIDIARY OF GENERAL TELEPHONE & ELECTRONICS

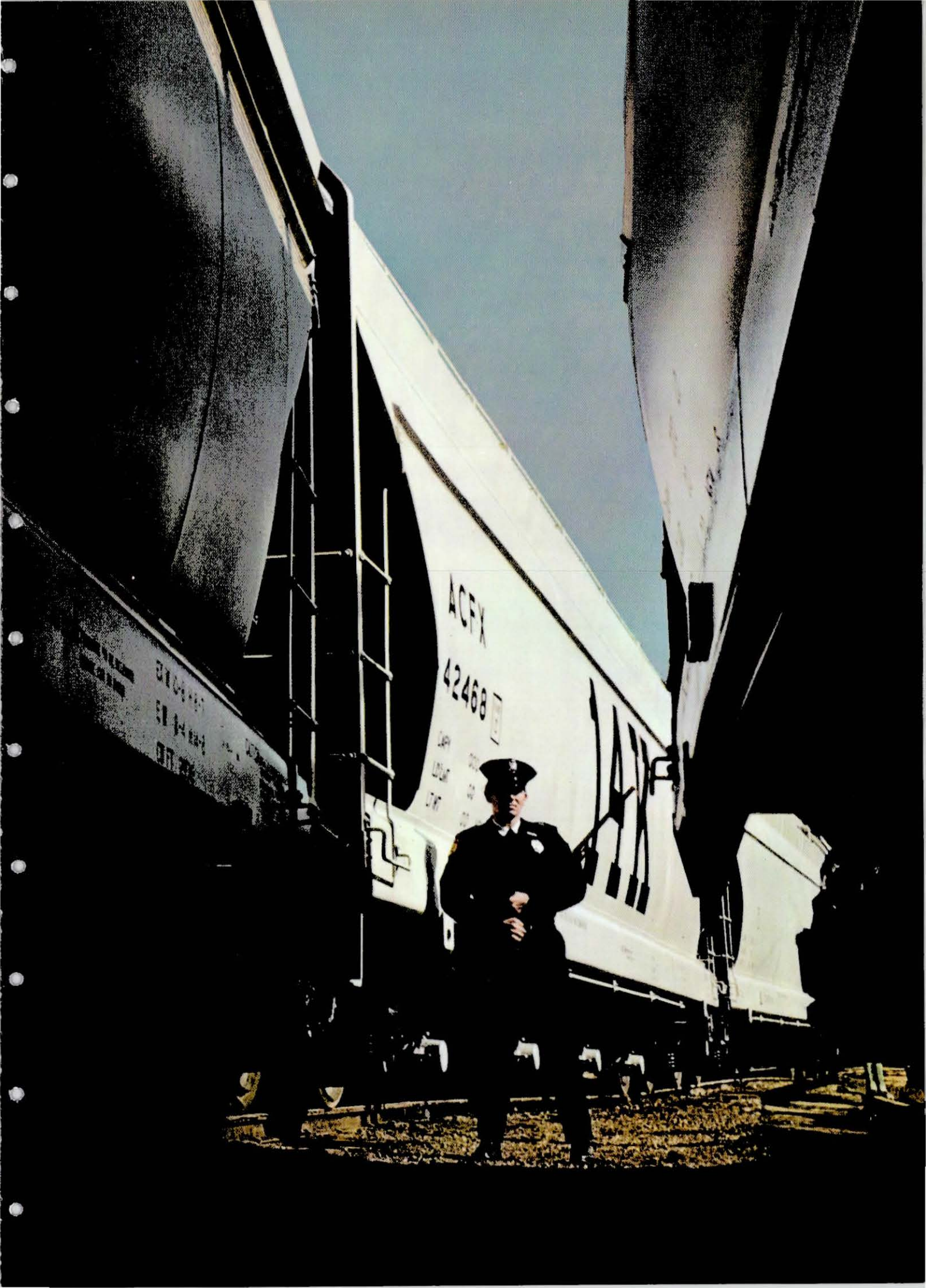
*TRADEMARK

WHEN YOU'RE READY TO SHIP GOLD DUST, COME TALK TO ACF

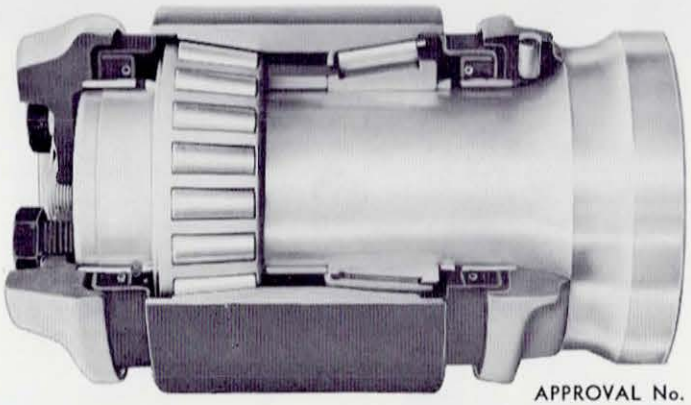
Ship gold dust in bulk? Improbable... or is it?
Not to people who have changed the
patterns of modern shipping.
Not to ACF.
Look what the Center Flow™ system has done,
for example. It has enabled shippers to move dozens
of dry bulk goods that never traveled in bulk before.
Center Flow loads and discharges faster
because you can choose the right
hatches and outlets.
Center Flow cars travel economically
because their unique shape makes better use of cube.
And they prevent contamination because there's
no center sill to cause unloading hang-up.
Today 30,000 Center Flow cars, in sizes from 2970
to 5700 cu. ft., crisscross America, carrying
more than 200 dry bulk commodities
on the nation's rails.
Think imaginatively about shipping.
Come talk to ACF Industries, Incorporated,
American Car & Foundry Division,
St. Charles, Mo. 63301.

acf ACF INDUSTRIES

MEMBER RPI


ACFX
42468

THIS IS NOT JUST AN AD...
IT'S A FACT!



APPROVAL No. AAR-10

NTN Tapered Journal Roller Bearing for freight cars.

NTN has for over half a century contributed to the progress of railroading. Through constant research, development and manufacturing techniques, **NTN** ranks among the top suppliers of tapered journal bearings in the world-market.
By tradition **NTN** has been noted for its know-how and technical skills.
NTN is the original high standard bearing that is used by railroads in United States, Canada and throughout most of the free world.
NTN stands for longer bearing life and greater reliability. It also keeps a very careful eye on the railroad's budget. THAT'S A FACT!

HERE'S WHAT IT MEANS TO YOU.

1. **500,000 mile guarantee.**
2. **Reduced Weight for easier handling and installation.**
3. **Minimum maintenance.**

NTN

NTN BEARING CORPORATION OF AMERICA
9 Albertson Ave., Albertson, Long Island, N. Y. 11507
7060 Lawndale Ave., Lincolnwood, Ill. 60645
FOR COMPLETE DETAILS — WRITE OR PHONE

Representative in U.S.A. UNITY RAILWAY SUPPLY CO., INC.
200 S. Michigan Ave., Chicago, Ill. 60604
Telephone (312) 939-3438

Representative in Canada CANADIAN BRONZE CO., LTD.
999 De Lorimer Ave.
Montreal 24, Quebec, Canada
Telephone (514) 524-1133

Manufacturer: The Toyo Bearing Mfg. Co., LTD.

SEE OUR DISPLAY BOOTH No. 158 SHERMAN HOUSE—SEPT. 29-OCT.3

Some railroads don't need our oil.

Your diesels need our oil.

Our tough, dependable Gascon diesel lubricating oils.

Over 100 railroads are using them now.

And they've gone a long way with them.

Over ten billion miles! With cleaner engines. Longer filter life. And better over-all locomotive efficiency.

Stop playing around. Call collect. Or write us for information.

Your railroad is real.

Sinclair Gascon GL-XD

A dependable, long-time performer. With high lubricating ability. For low wear rates. And low maintenance costs.

Sinclair Gascon GL-Supreme

A highly dispersant lubricating oil. With excellent alkalinity retention. High stability. Resulting in cleaner engines.

Sinclair

Railway Sales New York Chicago Houston

Railway Sales 600 Fifth Avenue, New York, N.Y. 10020 Phone: 212-246-3600

Here come the Russians into the new railway age

While America is taking track up—thanks to brutal rail taxation of a kind virtually unknown to truck lines, air lines, barge lines, bus lines—Russia is putting track down. Over the past 50 years, the Russians have approximately *doubled* the length of their two-track or multi-track line.

And why not?

What else has the volumetric efficiency of a giant railroad diesel (in which for each cubic inch of displacement there is only about half as much opportunity for cylinder wall friction as in a truck engine)?

What else has the easy travel of a train's steel wheel rolling on a steel track (as compared with the heat-producing resistance to flexing of a highway tire—on which you can often fry an egg)?

What else has the guided movement of a rail-based train (which guidance is as basic to transportation automation as it is to factory automation)?

What else has the low manpower needs of a train (compare its multiplicity of towed cars with the driver-for-every-unit case of highway trucks)?

The fact is that if the train had come along *after* the car, truck, airplane, it would have been hailed as a great technical step ahead.

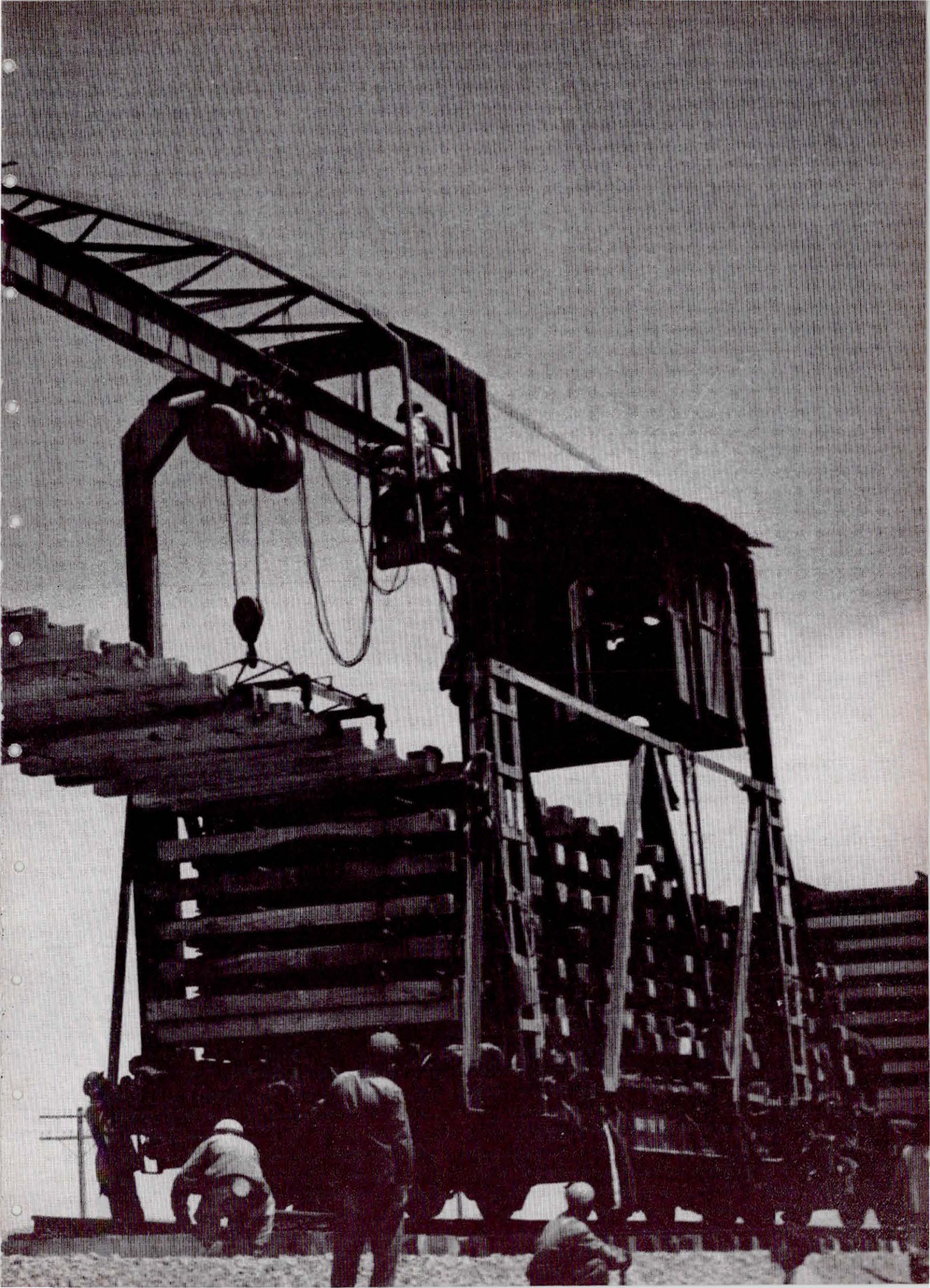
The Russians know railroads are the most efficient form of mass transportation in sight. They act that way.

Do we?

Be part of the weekly excitement in

RAILWAY AGE

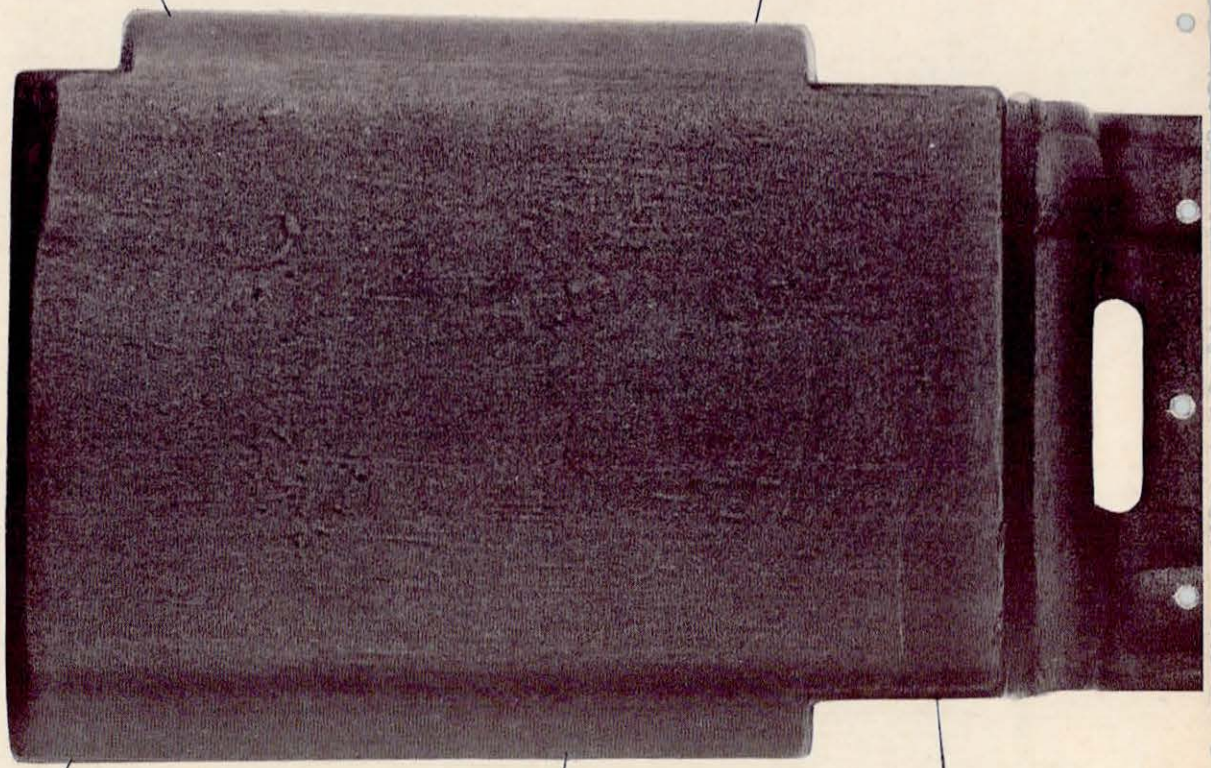
the transportation weekly



Remember why you switched to COBRA® Shoes?

That's why you should continue to order only COBRA Shoes

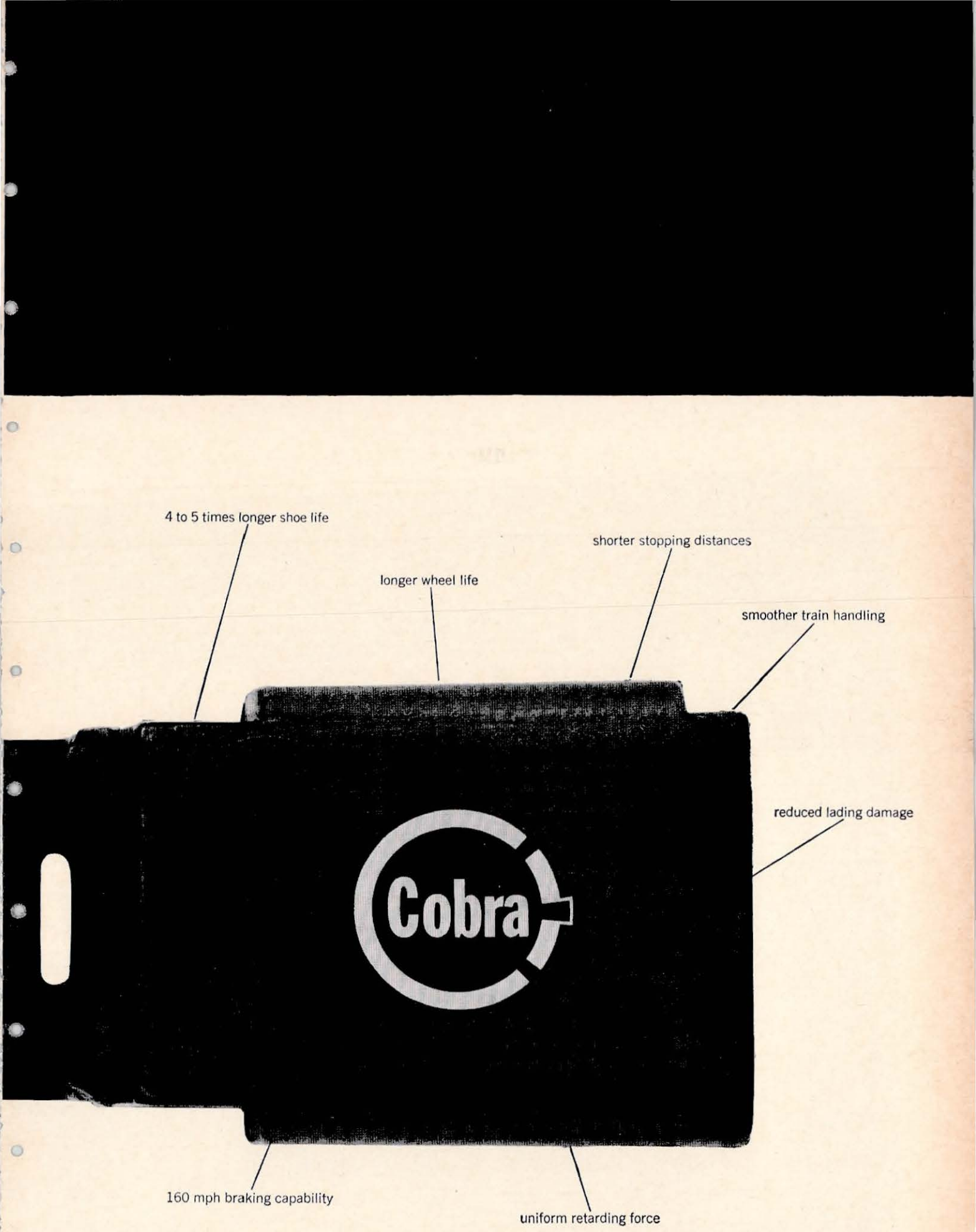
- No shoe but COBRA can offer you proven experience and engineering service.
- No one can match Cobra Shoe's performance record of hundreds of millions of miles of upgraded braking service.
- When it's time to reorder brake shoes, specify COBRA Shoes.
- COBRA Shoe is a product of the combined research facilities of Westinghouse Air Brake Company and Johns-Manville Corporation.



reduced maintenance

lighter, less complicated rigging

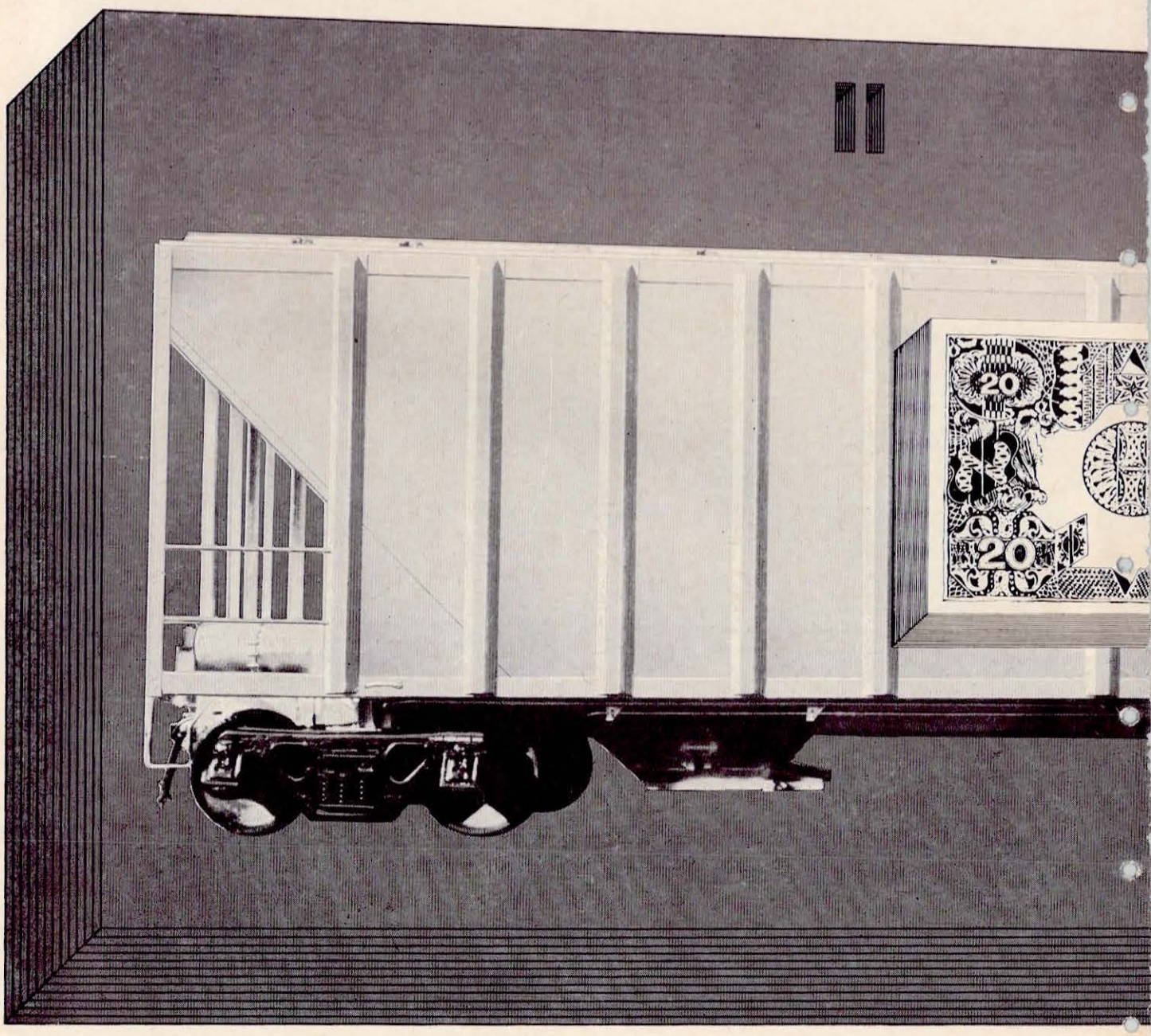
no clasp brake required



Railroad Friction Products Corporation, Wilmerding, Pa.

If you think your cars cost less than aluminum cars, have a computerized cash-flow analysis on us.

Alcoa's present worth cash-flow analysis is an accurate and objective method of evaluating your investment in hoppers, gondolas and other cars. More important, it gives you greater insight into a car's lifetime profit picture. Before you buy another car, find out how many of your profit dollars will be affected by:



lading capacity, accelerated depreciation, investment credit, residual car value, body maintenance, tare weight and motive power costs, right-of-way maintenance, per diem revenue and other factors. There's more to consider than first cost. Learn the long-term truth about freight-car investment.

Stop in and see us at the RSA Indoor Exhibition, Sherman House Hotel, Chicago, Ill., Sept. 28-Oct. 2, Booth Nos. 405, 406, 407. We and our G. E. computer have a lot to say about aluminum hopper and gondola cars.

Aluminum Company of America
1710-W Alcoa Building
Pittsburgh, Pa. 15219

Send me further information about
☐ Alcoa's computerized present worth cash-flow analysis for aluminum cars.

Name_____

Address_____

City_____ State_____ Zip_____

Change for the better with Alcoa® Aluminum

ALCOA

MFG Hatch Covers have a four-to-one weight advantage over conventional steel covers. Because they're so light, one man handles them easily.

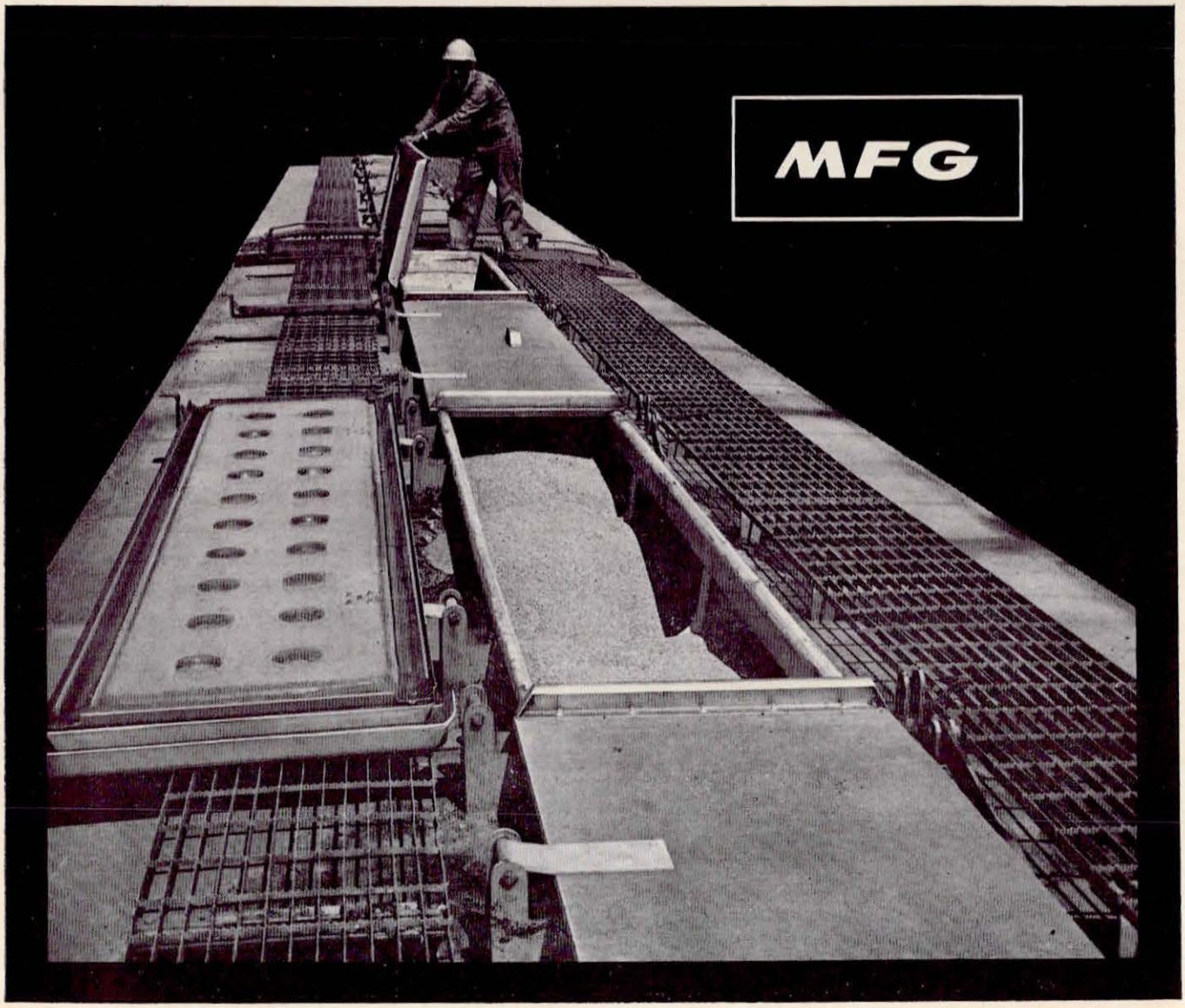
MATERIAL ADVANTAGES, TOO!

MFG Hatch Covers of molded fiber glass will never rust, corrode, dent, distort or deteriorate. They will withstand repeated slamming without injury. They won't spring out of shape, assuring perfect seals for cargo protection. They contain most corrosive cargoes without damage.

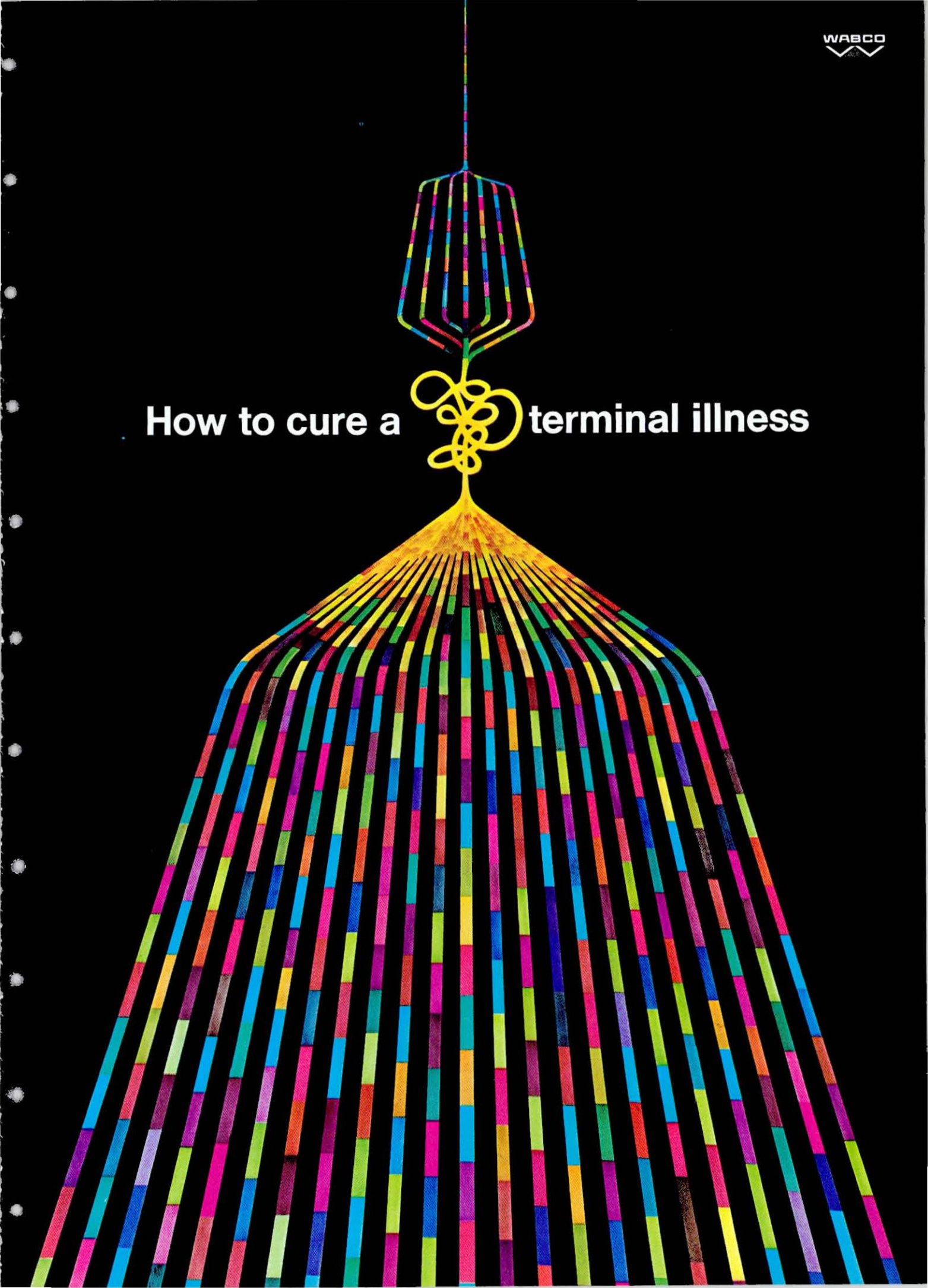
You owe it to your men and equipment to specify MFG Hatch Covers for your new hopper car line. And don't overlook cost advantages on your rebuilding line either. MFG Hatch Covers will pay off in efficiency, permanency and worker morale. Write for details and prices.

MOLDED FIBER GLASS PRODUCTS CO.
A Division of Molded Fiber Glass Companies, Inc.
4671 Benefit Avenue • Ashtabula, Ohio 44004 • 216: 993-2171

ONE-MAN HATCH COVERS



WABCO



Install WABCO'S Total Terminal Control

If your Railroad is suffering from terminal bottleneckitis, WABCO's TTC fights this condition five ways:

1. Sharply increases throughput
2. Sharply decreases paperwork
3. Greatly reduces lading damage
4. Provides better equipment, track and labor utilization
5. Gives you instant car location information

As a bonus, TTC lets you enjoy a speedy recovery of your investment.

TTC Automates these terminal functions

MOVEMENT CONTROL CENTER

- Forecasting and Planning
- Movement Control
- Car and Train Inventory
- Operations Coordination

PRE-ARRIVAL

- Advance Consist Reporting
- Inbound Train Reporting
- Forecasting and Planning
- Movement Scheduling
- Facilities Scheduling
- Track Assignments
- Advance Inventory

RECEIVING

- Forecasting and Planning
- Car and Train Identification
- Routing and Tracking
- Receiving Inventory
- Inspection Control and Reporting
- Service Scheduling

HUMPING

- Forecasting and Planning
- Track Assignments
- Hump Locomotive Speed Control
- Routing and Tracking
- Weighing
- Car Speed Control
- Bowl Inventory

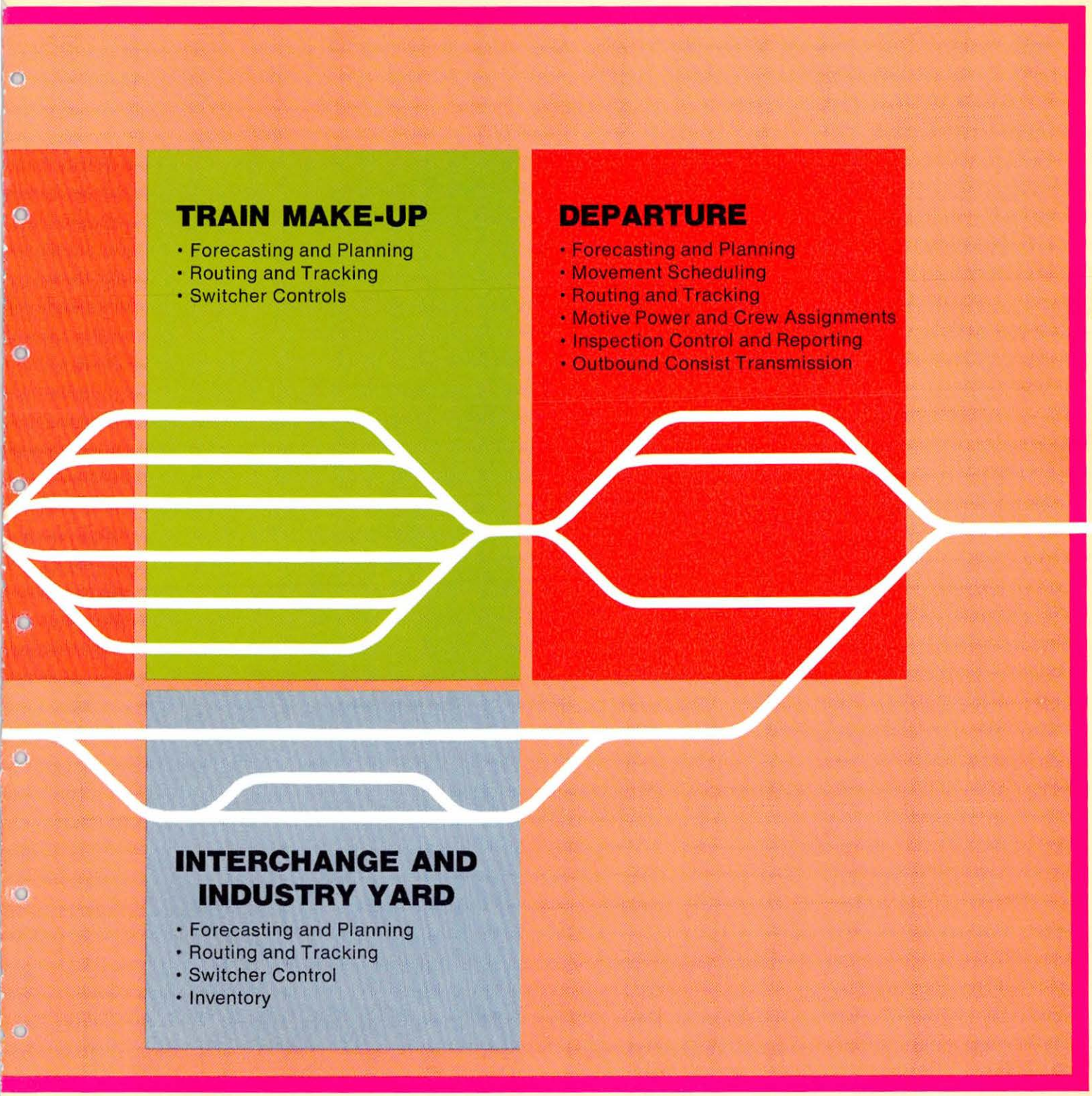
SERVICE FACILITY

(Motive Power and Equipment)

- Forecasting and Planning
- Routing and Tracking
- Work Assignments and Reporting
- Switcher Control
- Inventory

Acute terminal problem? TTC will do the job faster and more efficiently than you could ever hope to do it manually. TTC frees management people from routine decisions, lets them manage by exception. Computer-controlled TTC coordinates a thousand and one terminal tasks into one smooth-flowing movement.

WABCO



TTC medicine is easy to take, pays for itself quickly

When you apply the Basic Terminal Control System to an older class yard, production spurts immediately. You can gradually plug in more hardware and software segments until you achieve Total Terminal Control. This "building block" concept doesn't tear gaping holes in your budget—you make no large cash outlays in any given fiscal period. What makes the cure more painless is its cumulative rate of return. Each segment refines the system, steps up efficiency, accelerates the return on your investment. Naturally, TTC works even better in new terminal planning.

WABCO's Concept-to-Completion Capability

WABCO has a long history of pioneering railroad innovations. Our present product spread, coupled with our highly skilled technical teams, enables us to offer you the complete service—from feasibility study to Total Terminal Control. This single source capability guarantees you a tightly integrated, critically matched system with built-in contingencies for expansion.

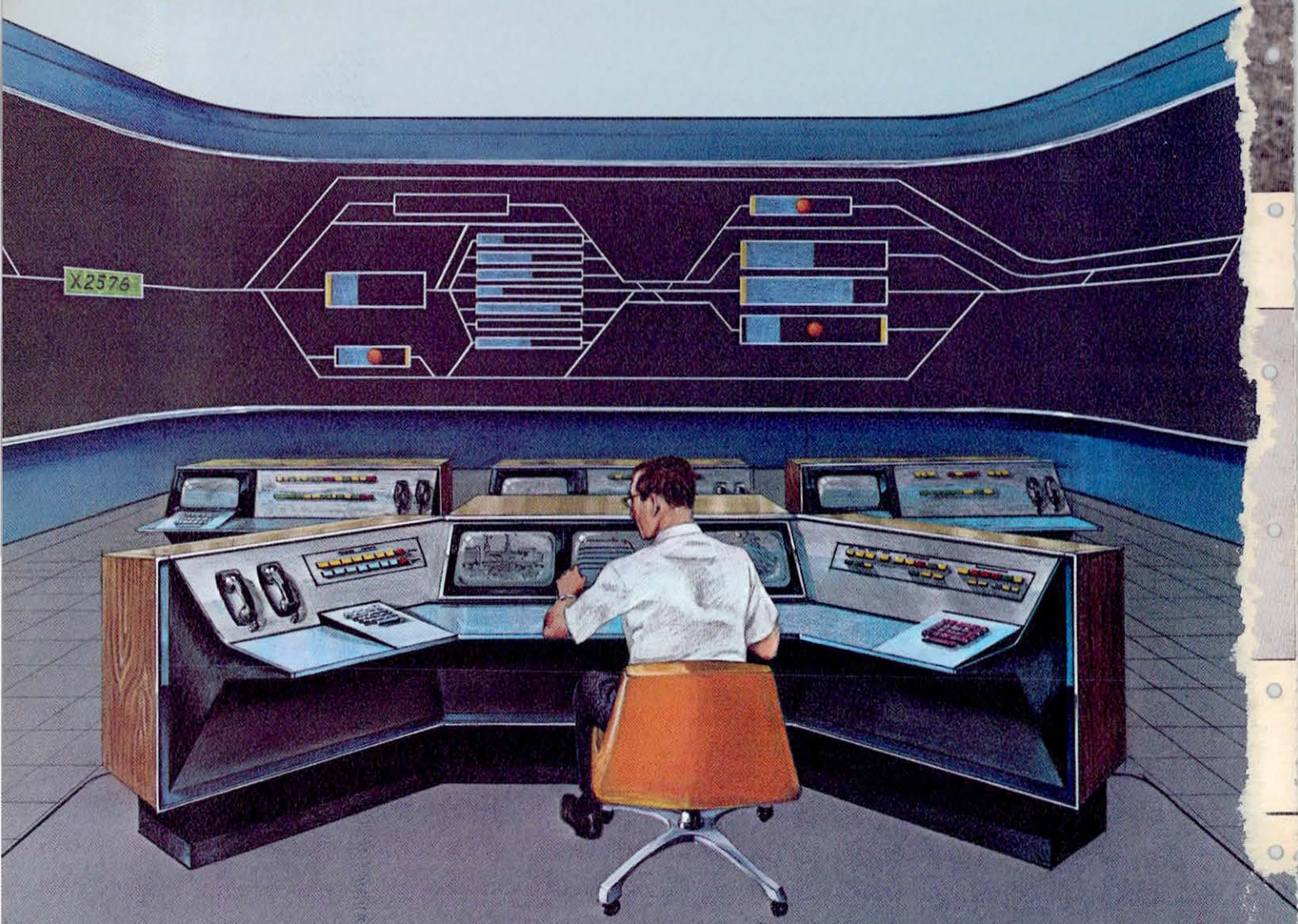
The projected increase in rail traffic will guide the industry to Total Terminal Control as a matter of economic necessity. The sooner you start putting a Basic Terminal Control system in place the better you'll be able to cope with higher costs and the more competitive your operation will be.

We hope our claims for TTC's benefits have stirred your thinking. If you have a credibility gap, we'll be glad to fill it in with facts. Call your WABCO Sales Engineer and he'll arrange for a TTC team to meet with your people.

Visit the WABCO Exhibit at the AAR—C&S Annual Meeting
Booths 1-2-3 • Hotel Adolphus • Dallas, Texas • Oct. 1-3, 1968

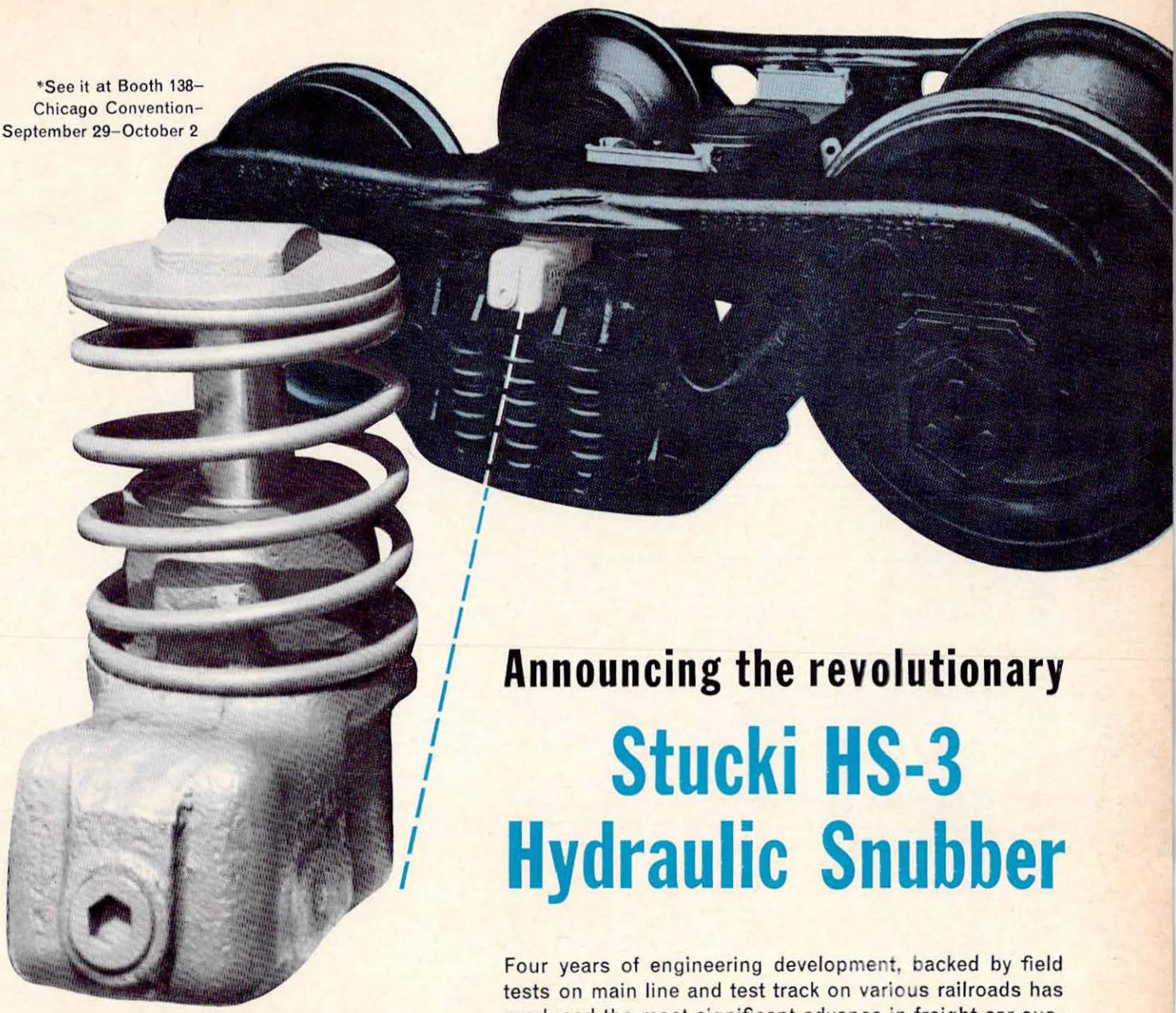
WABCO

WESTINGHOUSE AIR BRAKE COMPANY
SIGNAL & COMMUNICATIONS DIVISION
Swissvale Post Office, Pittsburgh, Pa. 15218



Bulletin No. 238 A068—1303.1—35M Printed in U.S.A.

*See it at Booth 138–
Chicago Convention–
September 29–October 2



Announcing the revolutionary

Stucki HS-3 Hydraulic Snubber

Four years of engineering development, backed by field tests on main line and test track on various railroads has produced the most significant advance in freight car suspension—the Stucki HS-3 Hydraulic Snubber. It completely eliminates wheel lifts at all speeds. Located between the top of the bolster and the upper chord of the side frame, this hydraulic snubber reduces weight shift and damaging high loads by absorbing the spring rebound energy. The spring nest is unaltered, so that it acts in its normal cushioning manner.

The Stucki HS-3 snubber is completely confined within the truck—nothing protrudes to be damaged in service. Designed and built to give years of maintenance-free service by A. Stucki Company, manufacturer of quality equipment for railroads since 1911. Brochure giving full description with typical results from tests with various types of suspensions sent on request.

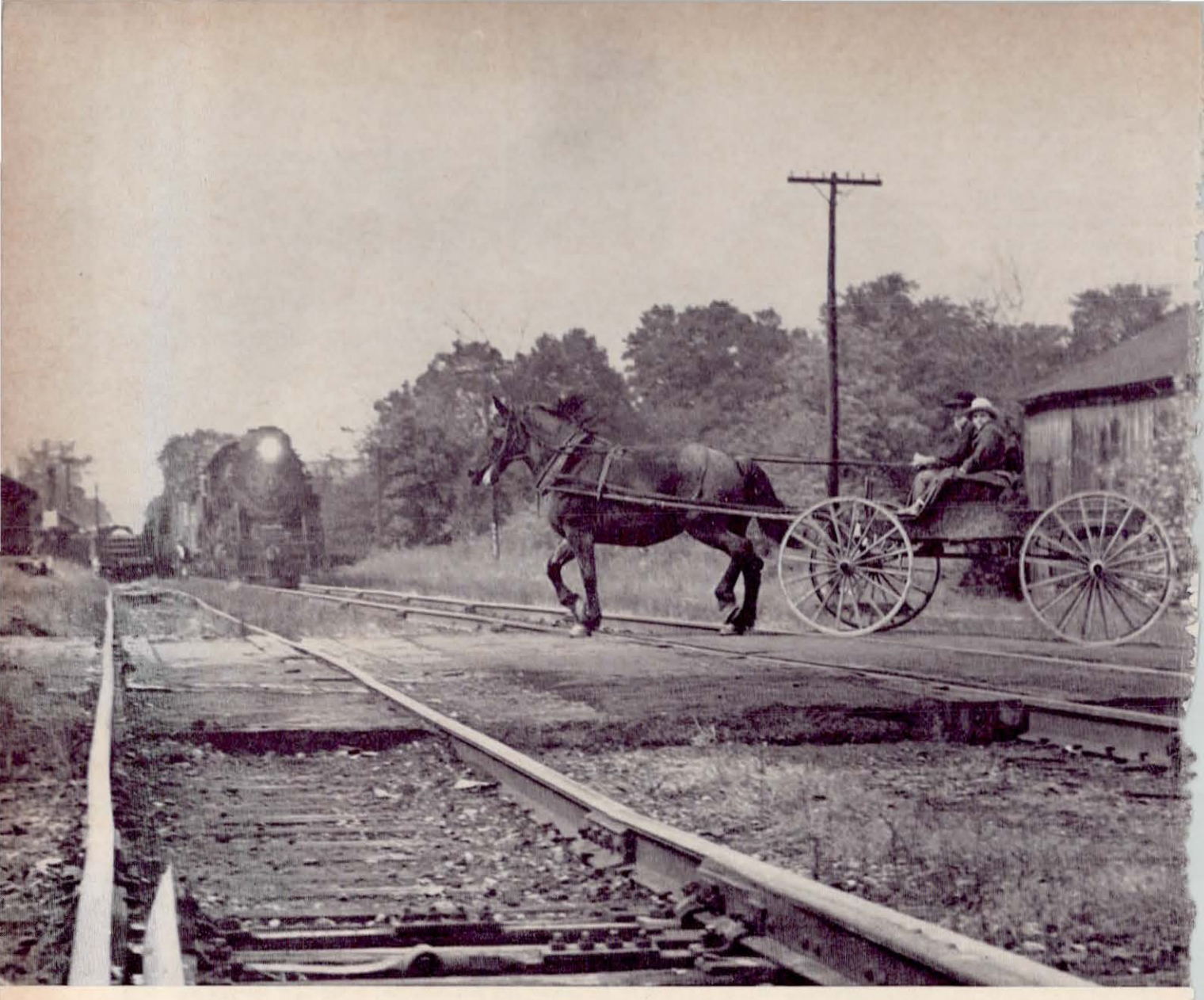
Dramatic Advance in Freight Car Suspension

- **Controls lateral rocking with hydraulics**
- **Reduces weight shift on bolster**
- **Reduces high loads on truck and track**
- **Improves tracking ability on rough track at all speeds**

A. STUCKI COMPANY

OLIVER BUILDING, PITTSBURGH, PENNSYLVANIA 15222 ☐ 412-281-1570

Circle 25 on coupon page 85



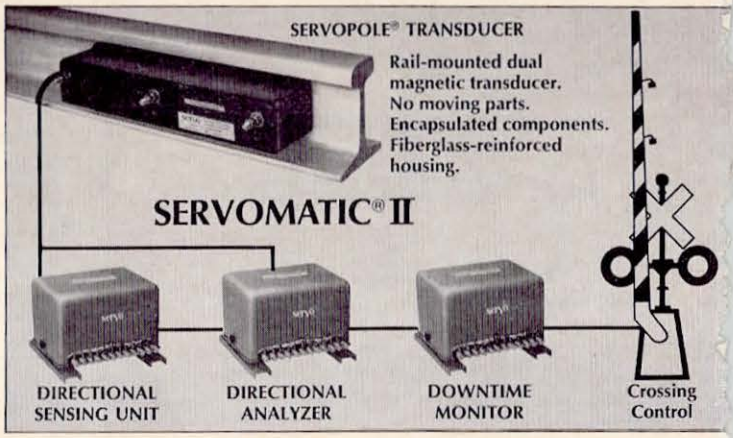
"I been thinkin', Ezra—it's gettin' so hectic 'round these parts—those railway critters oughtta set up one of them newfangled Servomatic crossing control systems!"

OUR horse and buggy friends were thinking a good number of years ahead of their time—but they were on the right track (no pun intended).

Today, things certainly do get "hectic" around railroad crossings, particularly at busy industrial switching areas. And that's exactly the place for our new SERVOMATIC® II Crossing Control System. SERVOMATIC II performs three basic functions: automatically determines train direction; provides required timing; actuates the crossing protection devices (flashers, gates, etc.)—*but only when necessary*. If the train stops short, or moves away from the crossing, protection is automatically timed out—permitting safe access to the crossing by vehicles and pedestrians. Switching operations are safe and more efficient, crossing downtime is minimized, and unnecessary traffic tie-ups are eliminated without the need for manual supervision.

SERVOMATIC II is built for long life with minimum maintenance. A unique "building block" arrangement allows easy, economical expansion of protection coverage for additional tracks in complex crossing areas.

If you're a railway "critter" who wants to know more about this "newfangled" system, just ask for Tech Data Publication 2012.



NEW CLOSED-LOOP CIRCUIT. Since 1963, SERVOMATIC systems have compiled an outstanding safety and performance record in railroad service. Now, to insure an even higher degree of system integrity, SERVOMATIC II incorporates a "fail-safe" closed-loop circuit arrangement. The new system also features improved sensitivity for low-speed train traffic, from 1 to 25 mph.

SERVO SYSTEM SERVICE—Servo Corporation of America backs up its railroad products with complete support and assistance—site survey, application engineering, detailed proposal, installation checkout, plus lifetime service and personnel training—all provided at no extra charge!

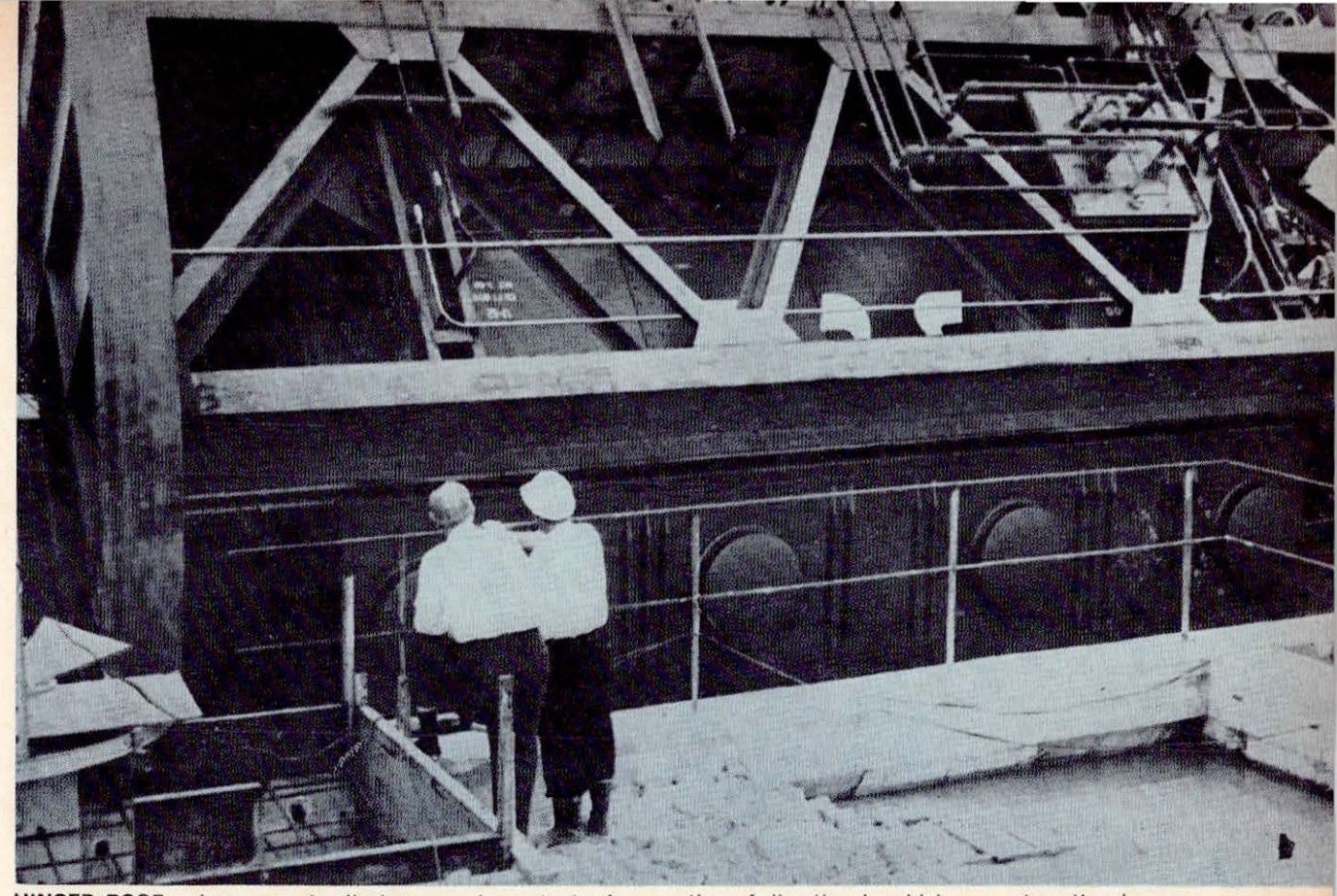
servo corporation of america

servo

railroad products division
111 new south road
hicksville, n.y. 11802
516-938-9700

MEMBER RPI

Circle 26 on coupon page 85



HINGED ROOF swings open to discharge car's contents, irrespective of direction in which car enters the dumper

'FLIP-TOP'

WILL IT TURN THE DRY-BULK BUSINESS UPSIDE DOWN?

Seaboard Coast line says its new hinged-roof cars, designed basically for hauling phosphate, may have other uses.

The Seaboard Coast Line is out to turn its phosphate shiploading business upside down. And this is actually what will be done when the road's converted 70-ton covered hopper, the "flip-top" car, goes into action. Flip-top, says SCL, is an industry "first."

Trains of 65 flip-tops, each equipped with rotary couplers at both ends and a hinged roof, will be turned upside down by a rotary dumper to unload phosphate rock at a rate of 3,000 tons per hour without uncoupling. The hinged roof, which can be opened at either side by rotation of the dumper, is an entirely new concept in covered car design. With two rotary couplers and the "universal" hinged roof, a car can be handled in the rotary dumper without regard as to which end is the leading end.

• **Without precedent.** Previously, to minimize investment, it has been the practice of unit-train operators to equip only one end of each car with a rotary coupler. Such a car can be dumped if it is joined with the conventional non-rotating coupler, but such an operation must be carefully policed to assure that the cars are entrained so that two of the rigid couplers are never joined. The flip-top roof is an innovation which can have major implications for dry bulk movements other than phosphate (as it will be used by SCL) and is being watched carefully by several operators.

The SCL prototype is the forerunner of a fleet of 1,250 similar cars undergoing conversion. They will be used to handle dry phosphate rock and dry phosphate chemicals to the road's new ship-loading facility under construction

FLIP-TOP PROTOTYPE was converted from dry-phosphate covered hopper by Bethlehem Steel.

at Tampa Bay's developing East Bay Port Terminal in Florida. The facility is due for completion April 1, 1970.

The SCL characterizes its new port as "the most sophisticated dry-bulk phosphate handling complex ever designed. The new facility incorporates the most modern concepts in car handling, car dumping, and ship loading to be found at any port in existence."

● **How it all started.** The SCL's proposed 12-million-tons-per-year facility has as its neighbor to the north the Ohio River Co., principal barge subsidiary of Eastern Gas & Fuel Associates of Boston. Ohio River's completely mechanized terminal is being built to serve a $50-million, 15-year contract calling for an annual movement of 2¼ million tons of wet rock phosphate from Florida to the new Freeport Sulphur Chemical plant at Uncle Sam, La., about 50 miles upstream from New Orleans.

Eastern could find no existing facilities on Florida's West Coast suitable for the expanded operation and decided to build its own. The company also determined that economics favored rail service for the 40- to 50-mile haul to the port from the mines in central Florida.

For some time before Eastern's decision to build, the SCL had been considering a move from Port Tampa's 45-year-old phosphate docks, converted from bucket to conveyor system in the mid 1930s. This action would terminate movement of long phosphate trains through the heart of downtown Tampa. No decision has been reached on whether to phase out the former Seaboard Air Line phosphate terminal on Seddon Island, Tampa, and the ex-SAL elevator built at Boca Grande around the turn of the century.

Tampa Port Authority came up with a plan for issuing over $7 million of revenue certificates to dredge and fill East Bay, creating sites for the Ohio River wet-rock phosphate terminal, the SCL dry-rock phosphate terminal, and future general cargo facilities. This was agreed to by the SCL. While the Tampa Port Authority cooperated with the SCL in the East Channel dredge and fill work, the road paid for its fill.

● **Mutual benefit.** Combined efforts —a joint project of the Port Authority, the SCL and Ohio River Co.—enabled the Port of Tampa to obtain $38 million of badly needed port facilities and eliminate a serious downtown traffic problem. Of the $38 million, $7 million covered the expense of dredging a 34-ft deep channel to a width of 1,000 ft., and a turning basin 2,700 ft wide to serve the new port area. The new terminals lie an average of 50 miles from the mines of nine companies operating in the Lakeland, Bartow, Lake Wales and Winterhaven area known as Florida's Bone Valley.

The SCL did the ground work for the port facilities with full agreement from the Ohio River Co. The new setup embodies maximum car utilization with the lowest cost consistent for handling phosphate expeditiously. The railroad expects to operate with approximately half the cars required to move phosphate through the older terminals. Ohio River has invested $13 million in the wet-rock terminal on land leased from the SCL for 15 years. It will have an initial open storage capacity for more than 130,000 tons.

SCL furnished 150 new open-top, 100-ton gondolas which are run in two 65-car shuttle trains, one train a day from the mines to the OR terminal for this wet-rock movement. The 100-ton roller-bearings cars, built by Bethlehem, are also equipped with rotary couplers at both ends. Cars handling wet rock are subject to severe corrosion and have needed body attention about every five or six years.

After exhaustive tests, SCL selected a new lining called Neothane, a combination of neoprene and urethane. This lining, tested under high pressure abrasives, indicates a possible 15-year life. Along with the 150 cars furnished Ohio River which have the Neothane lining, it has also been applied to 400 new 100-ton bottom dump wet rock cars used by the SCL in the mining area. To permit drainage of water from the cars when loaded with wet rock, special

screens, having openings of 0.01 inch (¼ millimeter), are installed in the hoppers. Screen at this mesh permits the water to drain, but not the phosphate.

Wet rock, discharged through the rotary dumper at the OR terminal, is loaded into 25,000-ton, self-unloading barges which are then towed by a 5,000-hp tug across the Gulf to the Freeport plant.

● **Enter flip-top.** Ohio River is next scheduled to move dry rock phosphate, beginning March 1, 1969. The first 150 cars of the 1,250 to be converted to flip-top design will go to OR for this service. Construction has begun on a 890- by 280-foot building for indoor storage of 150,000 tons of dry rock. The building will be served by stacker-reclaimers similar to those proposed for the SCL complex.

The SCL engineering staff and McDowell-Wellman Engineering Co. of Cleveland, Ohio, cooperated in the design of the new SCL terminal. It follows almost two years of planning which included numerous conferences and exchanges between phosphate industry experts on production and shipping, and the railroad's top men in traffic, transportation, engineering design and mechanical construction.

Dry phosphate is shipped in covered cars for protection against moisture and contamination. SCL mechanical personnel spent long hours investigating various side-bottom and end-loading arrangements which could discharge a car's contents through gratings into a pit for further handling.

The decision was made to install a rotary dumper. Through the combined efforts of Stanray, American Steel Foundries, Bethlehem and SCL engineers aimed at developing the best car for rotary dumper service, the "flip-top" car was born.

● **Other applications.** The prototype has been rigorously tested, including actual dumping of wet-rock phosphate by the Ohio River dumper. SCL officials are enthusiastic over its performance, and the possible adoption of the hinged-roof concept for handling many other bulk materials. Industry is interested in use of the car for movement of potash, sugar, grain and other bulk materials.

Along with the double-hinged roof, clamping pads are placed on both sides of the car to insure positive holding in the dumper. In the program to convert 1,250 cars to the flip-top design, 200 will be 100-ton, and the balance 70-ton. Stanray designed the roof and the hinges, ASF furnished the couplers, and Bethlehem converted the prototype, a covered hopper built in 1962 by ACF. Should additional cars be needed, the road now plans new flat-bottom 100-ton covered gondolas.

The center sill of the prototype car had to be lengthened to meet the requirements of the dumper, since the car positioner arm swings down between the cars and rests on the square face of the coupler shank immediately behind the striker casting. A second pair of arms clamp the couplers securely during rotation of dumper. This arrangement keeps the coupler face in the same plane at all times when the car is dumped. A new design uncoupling lever was developed in conjunction with the rotary couplers, eliminating the need to attach the lever to the couplers to operate them.

WET-ROCK FLEET

New 100-ton gondolas are used to move wet rock to Ohio River's operation. SCL plans for future "flip tops" call for gondolas, probably much like these.

● **Specialized storage.** A 65-car train of 70-ton flip-top covered hoppers will be unloaded, without uncoupling, in slightly over 2 hours. Rotary couplers and the double-hinged roof permit the contents to be poured from the top as the roof swings open from either side after the car is automatically positioned in the dumper, which turns the cars almost 180 degrees. Contents spill through a large open hopper onto a 4½-foot conveyor belt which starts the phosphate to a ship's hold or to storage.

SCL dry storage involves a building 280- by 890-feet. It is served by two new-style stacker-reclaimers which can discharge or reclaim at a rate of 3,000 tons per hour. Depending on the pattern, storage capacity ranges from 190,000 tons of material when 18 grades of phosphate are held to 148,000 tons with six grades. Complete flexibility in storing or reclaiming from storage is possible for the most efficient use of the space. The entire system is also equipped for dust collection to control air pollution.

Many innovations will increase the speed of unloading, loading and storing. In addition to the flip-top car, these include a gravity hump classification yard and completely automated indexing of cars through the dumper with one attendant operating a car positioner capable of handling 65, or more, cars. Another feature will be belt scales at major operating points—between unloading and storage, unloading and vessel, or storage and vessel.

The covered storage area can accom-

(Continued on page 72)

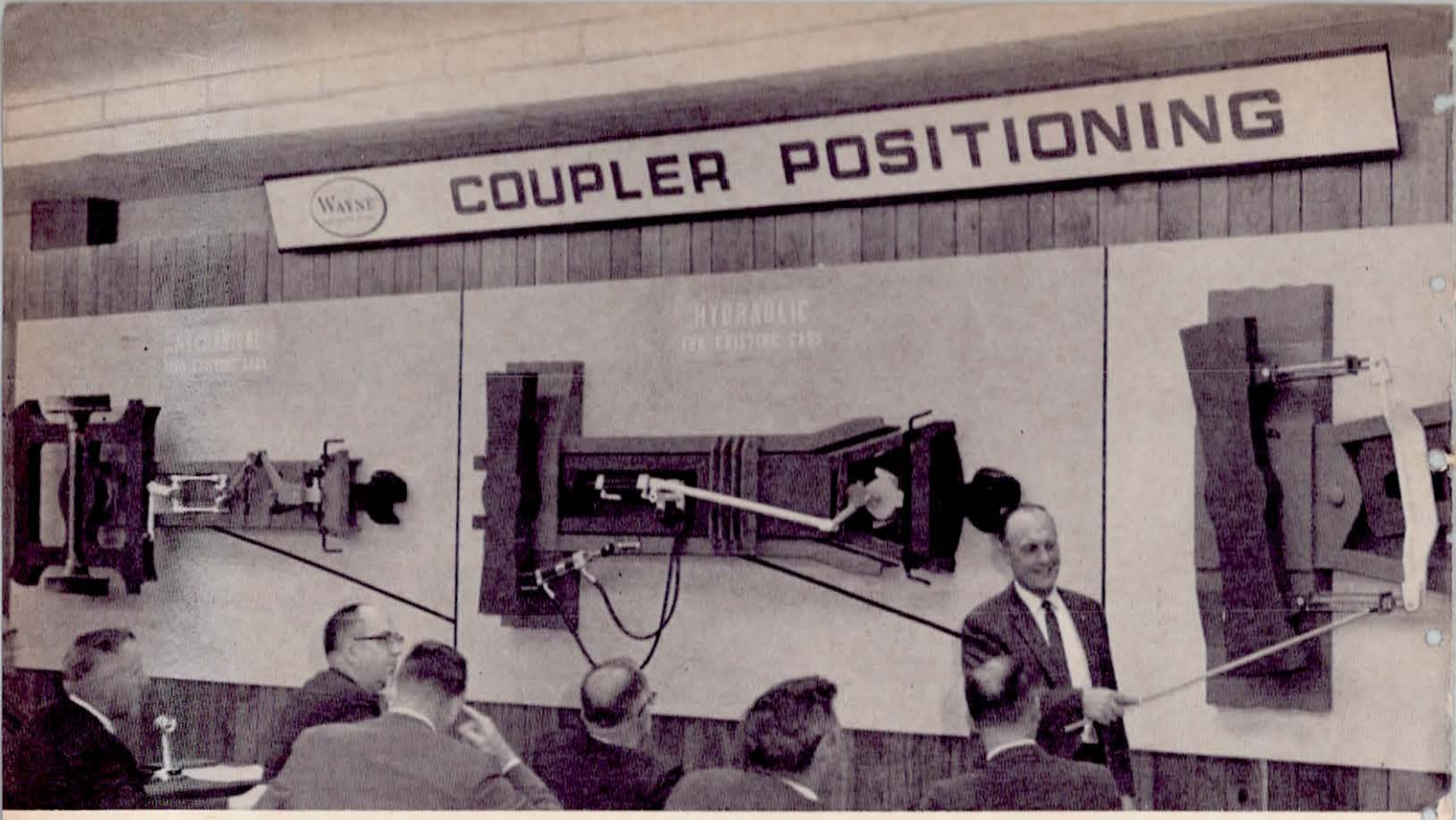
How phosphate is mined

In open-pit mining operations, drag lines with 20-ton scoops and 250-booms, remove the overburden, which ranges from 5 to 20 feet in depth. The beds of phosphate rock which are uncovered are seams from 1 to 40 feet thick. A three-man drag line crew can mine about 1,000 tons every hour.

Mined rock is dumped into an adjacent pit, fluidized into a slurry by high-pressure streams of water, and pumped at 8,000 gal/-minute through pipe lines to nearby processing plants. Here, the mixture of one and water is "washed," then screened to recover the pebbles of phosphate rock. It is then transferred to storage bins by belt conveyors.

A considerable amount of valuable mineral in the watery mixture is recovered by a chemical flotation process to remove sand and clay particles.

The wet rock is transported in the SCL's standard opentop wet rock cars, with an average loading time of 75 seconds per car, to drying plants where rotary driers can de-water 250 tons per hour. After drying, the rock is ready for shipment after being ground up, graded and stock piled.



TECHNICAL PROBLEM of coupler positioning on long cars finds Symington Wayne ready with three designs being discussed by

Needed: Systems approach to

Symington Wayne conference considers diverse factors, not all compatible, involved in the design and acquisition of cars to meet competition in railroads' future.

By **F. N. HOUSER,** Mechanical Editor

Could railroads be so enamored with their prospects for an exotic future that they are underattentive to pressing problems of the present? One speaker raised this question at the 1968 Railroad Engineering Conference sponsored by Symington Wayne's Transportation Equipment Division at Depew, N.Y. While discussions of "Car Design Inputs" may have resolved no quandaries —today's or tomorrow's, they did serve to bring into focus the need for a more comprehensive "systems" approach to the development and acquisition of rolling stock.

At the opening session, William J. Quinn, Burlington president, observed that "railroads are being challenged again to prove to their critics that they are doing a necessary job and that they are doing it well." Not only are conventional railroad practices undergoing evolutionary change, but concepts beyond anything now used in railroading are being actively sought.

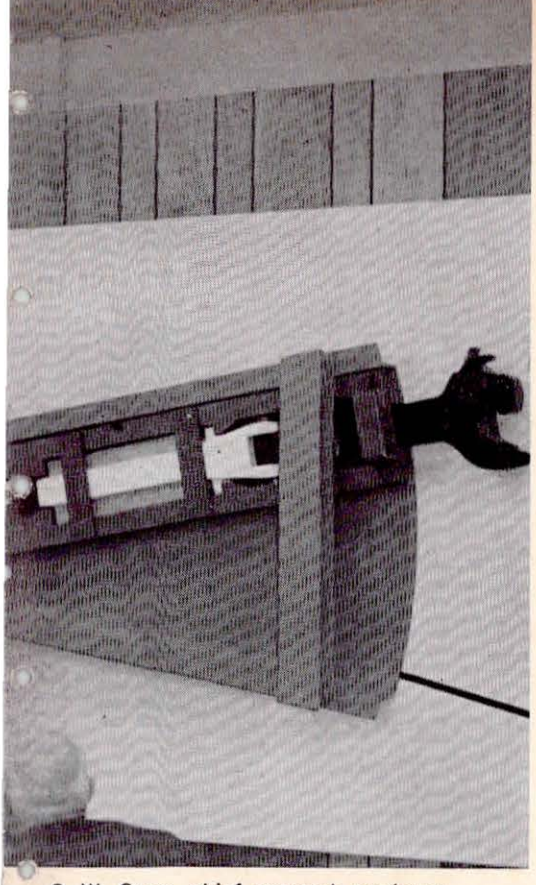
● **More than technology.** "Our innovations cannot be limited to technology in the mechanical and engineering sense," said Quinn. "They must embrace and be extended to such matters as public relations, legislation, labor relations, marketing, financial management, intermodal competition, and the railroad merger movement."

He pointed out that innovative railroads are an incentive for their suppliers and that "investment will be forthcoming for inventions and innovations that promise to help solve the many problems with which railroads deal today." Quinn noted that the railroad capital market is a big one—ranging between $1 billion and $2 billion annually in recent years.

"Railroads, at least in this century, have earned few laurels in the legislative arena," said Quinn. "For the most part the industry fights a defensive battle against legislation sponsored by unions or the supporters of competing forms of transportation." He urged that as railroads seek solutions for their problems, they try to view the industry "in the perspective of what it should ideally be in the future."

"It is inescapable," concluded Quinn, "that the ultimate goal of railroading must be the maximum possible degree of automation. Although this suggests labor difficulties, they are not insurmountable. Our experience in working out agreements with labor on merger problems convinces me we can find ways to solve future automation problems with fairness to all concerned."

● **Incompatible inputs?** Apart from pure technology, six "car design inputs" were discussed—and were termed



G. W. Cope, chief research engineer.

car design

"often incompatible" by Loren W. Smith, manager of research and engineering for SW Transportation Division. The six inputs included:

—Marketing, discussed by James R. Sullivan, vice president—marketing, Penn Central.

—Car user, discussed by Edward G. Hansen, distribution engineer, Physical Distribution Planning Division, E. I. duPont DeNemours & Co.,

—Financial, discussed by George K. Weigel, vice president and comptroller, Illinois Central. (*See page 51*).

—Operations, discussed by John H. Spicer, assistant vice president— transportation and maintenance, Canadian National.

—Right-of-way engineering, discussed by Dr. William W. Hay, professor of railway civil engineering, University of Illinois.

—Maintenance of equipment; discussed by Robert E. Taylor, chief mechanical officer, Burlington.

● **Marketing input.** Penn Central's Sullivan observed that "railroads' commercial footwork has been less than dazzling," particularly in the face of increasingly rapid changes in the commercial sector and in technology. Finally, however, railroads, "too long inward oriented," are broadening their concepts from being solely ton-mile producers to becoming operators of "total logistics systems." And none too soon, according to Sullivan, who pointed out that "either we manage change and profit by it, or we are overwhelmed by it."

Changes in the hardware with which the railroads do their transportation job, continued Sullivan, will have to be correlated by real market managers who think "logistics" and not just "railroad." He identified railroad marketing as being a three-part package consisting of equipment, pricing, and service. He stressed that it is not only important to identify and meet customers' needs, but to do this at the maximization of railroad profits. He pointed out that railroad-supplier cooperation is important in developing the proper tools for maximizing profits, and that the "short circuit" of customer pressure on railroads can have adverse effects on the profit picture.

● **Special problems.** Railroads and their suppliers, said Sullivan, must appreciate the implications of specialized and assigned equipment:

—High initial cost.

—Increased empty car mileage.

—Seasonality of utilization.

—Decrease in general equipment supply.

While Penn Central can report successful results from specialized equipment such as Flexi-Van piggyback cars, tri-level auto rack cars, and Flexi-Flo covered hopper cars for intermodal movement of granular products, success is not inevitable. Sullivan cited the 86-foot auto-parts box car which costs $37,000, weighs 60 tons and carries a 10-ton payload at rates which do not justify the investment. One such group of parts cars, representing a PC investment of over $10 million, is producing a 1.5% return on investment. "Much needs to be done to bring high-cost specialized equipment such as this into the black," warned Sullivan. He identified the ultimate problem as one of rate adjustment and stressed the need for "profit management" in the field of equipment.

The decline in the general-service fleet generates increasing demand for assigned freight cars, said Sullivan. There is, however, still a market for general-service freight cars, and equipment builders need to channel some of their development activity to such equipment. He suggested that the industry needs to move to a "functional pool" stage in an effort to escape some of the burden imposed by highly specialized freight cars.

● **Car user input.** Dupont, which has its own fleet of over 6,000 tank cars and covered hoppers, accounts for about $50 million of railroad revenues yearly. Hansen pointed out that the firm's goal is "the lowest total distribution cost with safety." While DUPX is now ac-

Full-scale dynamic tests by Battelle?

Railroads, suppliers, the AAR and the Department of Transportation should soon be receiving information on a proposed laboratory for full-scale dynamic testing of freight and passenger cars—a first for the U.S. Serious planning for this facility is well advanced at Battelle Memorial Institute at Columbus, Ohio.

Battelle will be seeking to determine if there would be sufficient usage to assure some return on its projected $3 million investment. The laboratory would be located on Institute property adjacent to a Penn Central line 14 miles west of Columbus. Dynamics laboratories for appraising the tracking and suspensions of rolling stock are already in operation in Japan (where trucks for the New Tokaido Line cars were developed), Great Britain, and France.

John E. Voorhees, chief of Battelle's Mechanical Dynamics Division, described the design of the facility at the Symington Wayne conference. He said it could be a simulator tool that could establish car design standards, along with track maintenance standards. He observed that more precise knowledge of vehicle motions and responses should aid in computer simulation of car dynamics, and that the proposed laboratory could well be the "missing link" in more scientific rolling stock development.

While Battelle gives full credit to the designs of overseas laboratories, it proposes to go a step farther and expose test cars to simulated curve and coupler forces, as well as to the vertical and lateral simulated track irregularities to which Japanese, British and French cars are subjected. The laboratory would cover over 10,000 square feet with stationary test cars mounted on eight powered discs that would be rotated to simulate the passage of rails under their wheels. Equipment would be designed initially to simulate speeds to 125 mph.

Controlled by an analog computer, the discs would be actuated in proper sequence to simulate a car encountering vertical irregularities in either rail, or traversing lateral misalignment, curves, or superelevation. Forces exerted by angling couplers on carbodies traversing curves would also be imposed. Added inputs could also be introduced manually into the simulation. Static axle loads of up to 80,000 pounds could be accommodated with dynamic loads of 63,000 pounds downward and 85,000 pounds upward exerted at each wheel. The hydraulic system would be capable of reproducing up to 12 inches of curve super-elevation and a 3-inch track irregularity.

QUINN OF BURLINGTON: Railroads are again challenged to prove they are doing a necessary job, and doing it well. The ultimate goal must be maximum possible automation.

SMITH OF SYMINGTON WAYNE: Several separate inputs that can often be incompatible are involved in the design of rolling stock for today's and tomorrow's railroads.

SULLIVAN OF PENN CENTRAL Railroads' commercial footwork has been less than dazzling, particularly in the face of increasingly rapid changes, commercial and technological.

UI's PROFESSOR HAY: After 160 years there are still many unknowns about track design and maintenance, and about the dynamics of equipment on track.

REED OF ACF: A "systems approach" evolution has altered the role of car-builders in the past 20 years as railroads entered the era of the specialized car.

TAYLOR OF BURLINGTON: The mechanical department has a major role in achieving the full potential of a railroad's investment in its freight-car fleet.

quiring 200-ton, eight-axle (span bolster) tank cars and already operates more than 100 150-ton, six-axle tankers, "the largest car does not always produce the lowest over all cost." Factors such as car maintenance and plant alterations must be considered in such a decision. Dupont now uses a computer to assay such factors.

In the design of large bulk cars, Hansen called some of the current AAR car design rules "unrealistic and restrictive." Among these are the limitation of 6000 pounds of car weight per foot of coupled length; the requirement for 60-inch couplers on long cars, other than piggyback types; and the coupled-length limitation of 89-ft 4 inches even on cars with pairs of trucks under span bolsters, such as the new DUPX tank cars. Dupont expects to continue to aim for high axle loadings, said Hansen, and expects railroads to know the costs of right-of-way maintenance in order that they may protect themselves in rates which are negotiated for movement of such equipment.

● **Track imponderables.** Unfortunately, according to Professor Hay, after 160 years there are still many unknowns about track design and maintenance. Conceding that the effects of heavy equipment on track, and the dynamics of the track itself need to be better understood, Hay stressed the "systems nature of car and track design." He said the elastic limit of rail steel is steadily being exceeded with today's 30,000 to 40,000-pound wheel loads, regardless of wheel contour, and that the result is shelling, with the potential for detail fractures that can produce complete rail failure.

Corrugated rail which develops on curves may, according to Hay, be the result of wheel skidding when tread contours do not permit constant rolling contact. He said this might have to be corrected with a "differential axle" or with a "free wheeling" type of wheel mounting. Another curve problem is the negation of the effects of superelevation by attempts to improve car-body stability. And, added Hay, stiff cylindrical cars present a particular problem because they do not accommodate themeselves to track irregularities.

● **The onus of operations.** From an operating standpoint, the major freight-car problems are those of reliability and utilization. CN's Spicer drew a comparison between rail and highway equipment, pointing out that a typical freight car's 20,000 miles annually compares unfavorably with the 80,000 miles per year averaged by a long-haul truck. The investment per ton of capacity for the 15-ton truck and the 50-ton rail car are comparable, while the truck makes approximately 90% of its miles loaded as compared with 60% for the average freight car. Along with the inherent advantage of the truck, from a lading protection standpoint, is the presence of a full-time mechanical inspector in the person of the driver.

Spicer pointed out that an equipment failure or derailment can tie up thousands of freight cars while the failure of a tractor-trailer rig ties up only that set of equipment. CN records indicate that the average car is on a repair track five times annually with an average detention each time of over two days. And this, noted Spicer, is exclusive of the hundreds of hours lost in train inspections at terminals. On CN's transcontinental Montreal - Vancouver freights, for example, cars are inspected 11 times and these checks account for almost 15% of the transcontinental schedule time.

He identified some of the immediate car problems as:

—Hotboxes.

—Rock-and-roll, or lateral instability.

—High vertical and lateral impacts produced by today's truck suspensions.

—Absence of automatic slack adjusters;

—Safety appliances which are particularly vulnerable to damage.

—Brake pipe leakage, particularly in cold weather.

—High axle loads which present routing problems, especially on roads such as Canadian National with a high percentage of low-capacity track.

—Proliferation of car types which present problems of car distribution.

"We need a more comprehensive systems approach to equipment design," observed Spicer. And while there is a need for continued research to fulfill future requirements, there is a need "to bring together factors available now to solve today's problems."

● **And equipment maintenance.** Utilization of cars needs to be a greater concern of mechanical departments, commented Robert E. Taylor, Burlington chief mechanical officer. On the Burlington, for instance, the freight-car fleet represents 26% of the road's total assets. It was 18 months ago that dissatisfaction with the under-utilization of this investment led to a concentrated attack on the problem. The mechanical department has a major role in realizing the full potential of such an investment, Taylor added.

The average Burlington car earned $8.18 daily last year when 130,000 cars were bad ordered with the resulting delay estimated by Taylor to be about 24 hours per car. Such detention thus represented a revenue loss of $1 million during the year for the Burlington. In the case of more expensive, better utilized equipment, the revenue loss can approach $40 per day.

What can be done to reduce such bad-order detention? Taylor had suggestions and observed that they might evoke "more questions than answers."

More car repairs in train yards,

rather than on shop tracks, would reduce care detention. He suggested that wider track spacing and improved accessibility are important in achieving such results. Taylor also pointed out the importance of work measurement and control which, he said, can be applied successfully to maintenance operations. Also a possibility is earlier retirement of obsolete equipment with the scrap-value invested elsewhere to make a greater contribution to the road's financial results.

Taylor called on carbuilders and component suppliers to produce better designs which are easier to inspect, simpler to repair and are manufactured under more strict quality control. He warned that stress on car utilization will find fewer and fewer roads satisfied with reimbursement solely for the materials and labor involved in correcting builders' or suppliers' defects. What will be needed, he concluded, will be price tags on cars from a standpoint of utilization.

● **Carbuilder response.** Under the motivation of six such inputs, a "systems approach" evolution has altered the role of carbuilders over the past 20 years, according to George E. Reed, director of engineering and research for ACF. "We have entered the era of the specialized freight car and the effectiveness of any such car is a reflection of the design inputs," observed Reed. He added that a builder is dependent on design inputs from outside its organization for the production of successful equipment.

The past two decades have seen the car design function transferred largely from the railroad to the builder (a factor also discussed by IC's Weigel). Builders have been confronted with developing greater design engineering capabilities, as contrasted with the production engineering which was their sole function in the pre-specialized car era.

Reed noted that while 20 years ago ACF produced standard freight cars with features spelled out by the railroads, changes in railroading and carbuilding now find ACF building two special cars for every standard model that is turned out. He stressed that builders are taking their new role most seriously and have expanded their research and development facilities, along with their engineering forces. The result is that builders now often initiate new car concepts.

Such concepts, said Reed, result when the shipper is regarded as a true customer of the railroads and the builder sets about to integrate railroad service into the shipper's production process in a way that will be beneficial to both. The resulting rolling stock, he explained, usually is a compromise that makes railroad movement attractive enough to win customers while proving profitable for the carriers. Reed identified as a major railroad industry shortcoming the absence of "environmental data, including dynamic criteria." It would be exactly this sort of information which would be produced by the proposed Batelle Institute car test facility. (*see page 49.*)

● **Coupler positioning.** One specific car design problem which has received much attention from Symington Wayne is that of coupler positioning. Geoffrey W. Cope, chief research engineer, identified extreme car length and long overhang from truck center to coupler face as the primary causes of current coupler problems. Such cars have couplers which are difficult to align manually and often sustain damage from "passed" couplers.

Cope unveiled three separate positioning arrangements—two for existing cars and one for new equipment. He noted that it is not possible to overcome the coupler problem on existing cars without major structural changes, but it is possible to improve the alignment situation on up to 90% of such equipment. For long cars already in service, SW has developed both mechanical and hydraulic linkages which translate truck swivel into alignment of the coupler parallel to the track center. For new cars, SW proposes a "swing draft sill" which would, in effect, produce a coupler with an effective length of 136 inches. "If we are to continue to build long cars and to achieve profitable utilization," concluded Cope, "then the coupling problem requires proper resolution." ■

G. K. WEIGEL, vice president and comptroller, Illinois Central

Financial input for car programs

With only superficial analysis, railroads can spend too much.

Are out-dated financing and accounting practices leading to unwise investments in new equipment? Illinois Central Vice President and Comptroller G. K. Weigel posed this question in an eyebrow-raising paper prepared for Symington Wayne's 1968 Engineering Conference at Depew, N.Y. A former investment analyst with the Metropolitan Life Insurance Co., Weigel held senior financial positions with North American Car Corp. and Missouri Pacific before joining the IC. The text of his paper (which was presented at Depew by IC Assistant Comptroller G. M. Craig) follows.

What financial inputs importantly determine both the specific and general nature of the rail industry's carfleet?

With a question like that, you can get some obvious answers. For example, you'll get general agreement about the fact that overall equipment ownership largely depends upon a carrier's ability to generate money.

When one tries to trace the financial considerations important to specific equipment design, however, the problem becomes a bit more sticky. In fact, when Mr. Cope outlined the theme of this conference, he noted—"Many of the car design inputs are not compatible —and herein lies the problem."

Who are the people in railway organizations that one should ask about such matters? That, too, is an interesting problem. The people who become involved, one way or another, in equipment decisions are general management, operating, sales, mechanical and financial officers.

On many railroads, financial officers tend to feel they've done their work when they come up with the money needed to buy, build or lease equipment which *others* say the company requires and must have. (*Continued*)

ARE LONG TRAINS REALLY THE MOST ECONOMICAL?

General management people—and here I group together presidents, directors and other general staff—tend to assume that current car designs incorporate into the railway enterprise maximum benefits from orderly progress in technology and technique. They also tend to assume that the equipment they acquire is what they must have to maximize their competitive opportunities.

How about the operating man in this process? He tends to speak for a special need—the need for maintaining practices that have enabled him to make the rail "product" less and less labor-intensive in time past. How? Bigger and bigger cars and longer and longer trains are two of the principal ways in which this is done. There are other ways, too. Trends toward bigger yards, for example. But seldom operating men attempt to weigh the economic consequences for equipment, say, of a breakthrough in restrictive operating techniques via change in traditional work rules.

How about the traffic man? He also addresses himself frequently to equipment problems in rather limited terms. Few traffic men go through very much more than a ritualistic analysis of the profitability of new equipment, much less attempt to figure out what such equipment does to their company's overall, long-term commercial capability. Instead he personally is concerned only with day to day needs. He looks for volume since both he and the operating man usually consider maximum "density" on his property's operating mileage as the chief criterion of successful operation. Naturally, therefore, when a profit analysis of new traffic is jointly made, both the traffic and operating people may attempt to minimize costs. Thus rates can be held down to keep the shipper happy and projected profit can be maximized to keep the financial officers, the president and the directors happy. Today we have freight cars that are 30 years or more old, but which have been rebuilt two or three times. A long depreciable life, of course, tends to keep the depreciation cost in our profit analysis at an unrealistic level since many roads look only to original cost, and neglect rebuild costs when ascribing a 30-year life to new freight cars.

Finally, how about the mechanical officers, the men who, once upon a time, were the car masters of the rail industry, the men who designed and built rolling stock? As a class, they are all but gone from the industry. Economy waves have all-but-eliminated creative mechanical officers from carrier rosters since World War II. Few railroads still have the manpower resources to *design* equipment. Even fewer railroads have the creative mechanical engineers to design equipment that reflects the new competitive insights that are being painfully achieved, here and there, by operating, traffic and marketing people. The mechanical geniuses behind the increasingly complex car superstructures we see on the railroads today are, mostly, working for carbuilders and leasing companies. And there they work within financial limits that are somewhat different from those imposed upon mechanical officers by the railway companies themselves.

There are other people with a hand in such thinking in addition to those I have just enumerated. The people responsible for right-of-way are also important factors in equipment design—but like the rest, their contribution is by indirection and, often, by exception.

What role does money play?

Thus, it becomes somewhat difficult to get a handle on what role *money* plays in the development and refinement of car design.

Does the industry's technical and trade press give any more comprehensive view of the role of money in the evolution of equipment design?

There are clues. Some such clues are pretty obvious—and some are downright funny.

A quick look at the conventional wisdom as revealed in the technical press gave me these nuggets:

— An editorial I read a few weeks ago told me that railroad equipment was getting more complicated and expensive.

— An article of even more recent vintage announced that cars, even more specialized than we have now, are already on the drawing boards.

— We are also led to believe, from ads in the trade press, that not only are these fancy cars the industry's salvation—they are also designed to make railroads more happy, wealthy and competitive provided they are fully equipped. Furthermore, the accessory hardware required by these fancy cars often adds up to a very substantial investment and must be purchased before such cars are suitable for handling the loads they were designed for. The options on new equipment would make auto-salesmen envious: bulkhead dividers, chain tie-down systems, side wall fillers, cushioned underframes, cushioned couplers, special trucks, plug doors, insulated walls, special decks, all of which makes an investment nightmare of buying new equipment.

What does all this add up to?

First, when you look at the long road back and then turn around and peer up the road ahead, the thought comes to mind that the industry may have been spending *too much* on equipment in the last 20 years.

Railways spend millions of dollars annually on equipment and I am afraid that some of these millions are spent as a result of superficial analysis. Equipment is rather easily financed. Such ease of purchase, in a sense, postpones problems that someday will have to be dealt with.

Specifically, most railroads still use a financial instrument which has remained unchanged for at least the past 70 years—namely a Philadelphia Plan Equipment Trust which provides 80% of new equipment cost and is amortized in equal annual amounts over a 15-year term. The financial community readily accepts these obligations, even for railroads with marginal earnings because of their long history without default.

In our accounting reports to the ICC we depreciate these cars over a 28 to 30 year life, even though some railroads use a 14-year life for tax purposes.

Do you suppose these financing and accounting practices create a barrier to more radical work on equipment substructures? Have they forced design to prolong life? Why the immense difference in progress between car substructures and car superstructures? Who has *proved* that the most economic product is generated by long trains—trains that need expensive, complicated, heavy and ancient undercarriages?

Is builder research tied close enough to the marketing and operating knowledge that is, here and there, beginning to surface in the industry?

Unfortunately, I don't have the answers, but I suspect that such factors have already created a clear highway on which the industry must move.

I also suspect that complex economic justification for some of the cars that are currently recapturing traffic for the railroad is, at best, debatable, and, at worst, erroneous.

Some equipment represents a trade-off of dollars between carriers and shippers.

Other equipment, I am convinced, puts a burden on railroads because it encourages shippers to cut corners on packaging and dunnage and thereby greatly enlarges the claim potential of their traffic.

Still other equipment cannot be justified by any profit measure that I know of. Even the highly touted auto

(*Continued on page 74*)

New name in the family: MLW-Worthington Limited.

(formerly Montreal Locomotive Works Ltd.)

New name, bright future for Canada's most diversified heavy equipment manufacturer.

Montreal Locomotive Works Ltd., has long enjoyed an enviable position among Canada's heavy equipment manufacturers. Now, with the help of the broad international facilities of the Worthington Corporation, the new company known as MLW-Worthington Limited will be able to make even greater inroads into world markets.

And while remaining Canadian in identity, management and policy.

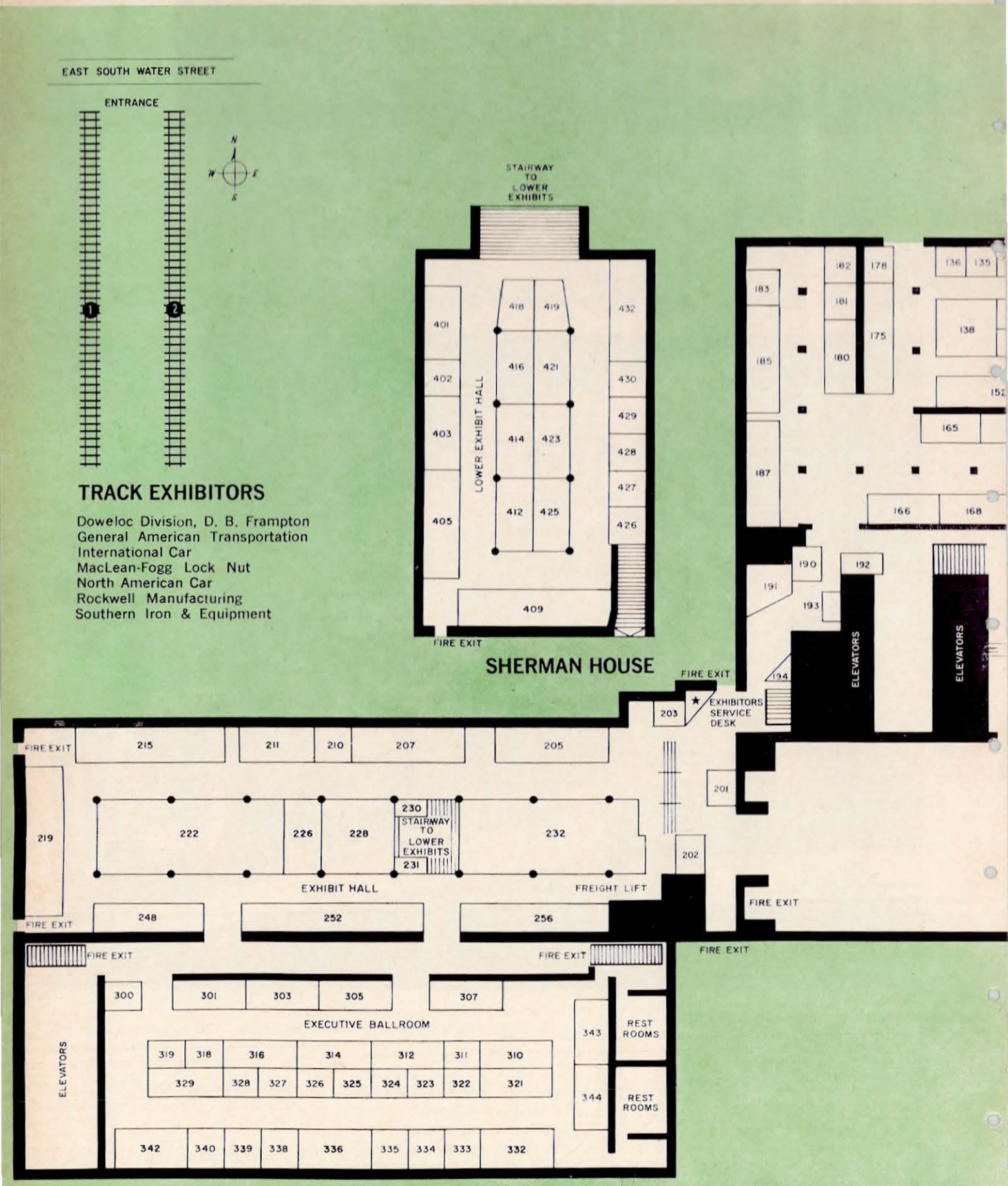
On the international scene, the company is already active in 39 countries, with an extremely successful line of diesel locomotives, diesel generating sets and considerable orders for heat exchange equipment, feedwater heaters and surface condensers for nuclear and fossil fueled utilities, and the chemical and petrochemical industries.

New name, old tradition, bright future: MLW-Worthington Limited, 1505 Dickson Street, Montreal, Quebec, Canada. Worthington is world wide in manufacturing, sales, service.

MLW-Worthington Limited MLW

6805-C

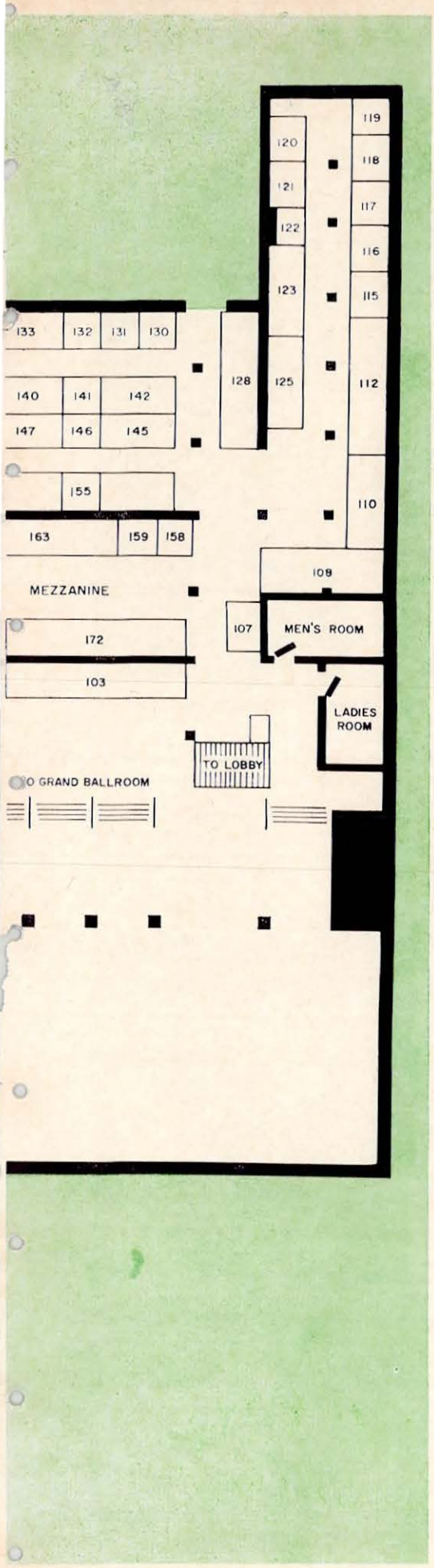
Circle 12 on coupon page 85



TRACK EXHIBITORS

Doweloc Division, D. B. Frampton
General American Transportation
International Car
MacLean-Fogg Lock Nut
North American Car
Rockwell Manufacturing
Southern Iron & Equipment

SHERMAN HOUSE

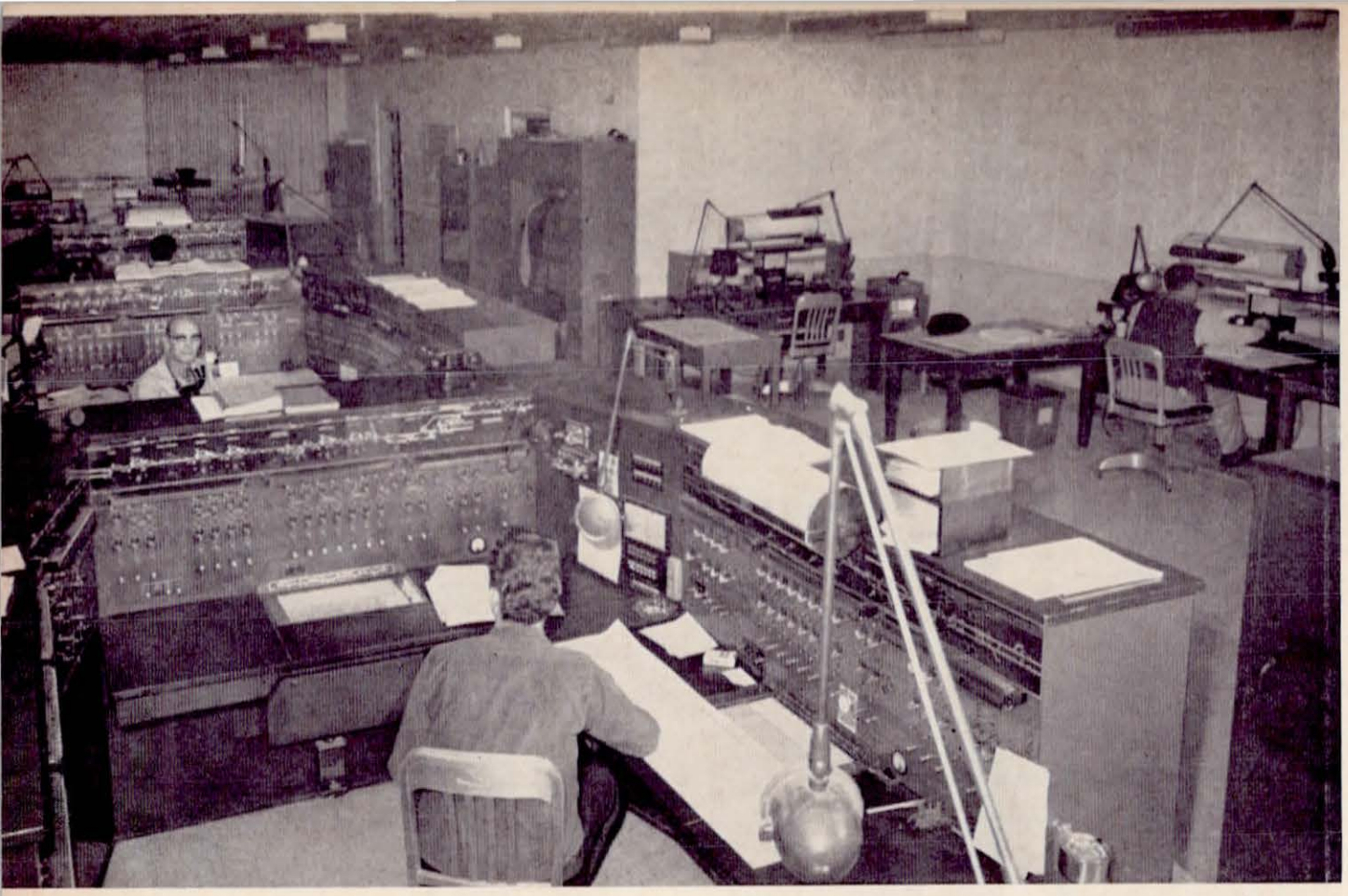


Chicago exhibits open Sept. 29

Accompanying list and diagrams indicate sites of track and indoor shows in conjunction with Coordinated meetings.

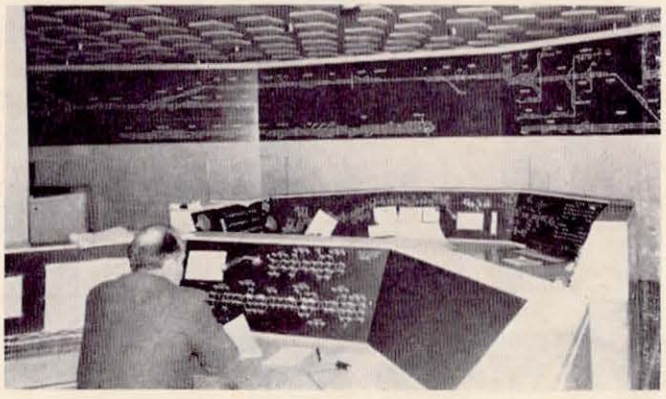
SHERMAN HOUSE EXHIBITORS

Abex	343
Adams & Westlake	165
Aeroquip	256
Airco Speer	321
Airmaze	141
Ajax Consolidated	212
Alco Products	123
Alcoa	405
American Air Filter	328
American Koyo	413
American SAB	110
American Steel Foundries	232
Anaconda Wire & Cable	311
Apex Railway Products	166
Atlas Railway Supply	158
Band It	231
Beck Duplicating	338
Berwick Forge	332
E. L. Bruce	423
Budd	342
Buffalo Brake Beam	187
C & D Batteries	319
Calloway Mills	230
Cardwell-Westinghouse	175
Chromium Corp. of America	155
Clark Equipment	318
Component Engine Parts	115
Conger Lantern	323
Dayco	430
Dayton Steel Foundries	327
Dearborn Chemical	340
Demp-Nock	178
Detroit Graphite	183
Doweloc	322
Duff Norton	133
Durox Equipment	191
Elastic Stop Nut	333
Electro-Motive	219
Ellcon National	152
Enterprise Railway Equipment	226
Exide	427
FAG Fisher Bearings	135
Fabko Engineering	416
Farr	303
Fast-Lok	130
Freightmaster	421
Gatke	132
General Electric	252
General Steel Industries	312
Gould National Batteries	185
Graham White Sales	314
Gulf Oil	425
Gustin Bacon	117
Hennessy Products	316
Holland	145
Homelite	418
K. W. Battery	103
Kemlite	403
Keystone Railway Equipment	248
Kux Manufacturing	339
Lanman Bolt & Forge	300
Lord Manufacturing	128
M & J Diesel Locomotive Filter	158
Magnus Metal	181
Manganese Steel Forge	336
Markal	182
Midland-Ross, Power Controls	222
W. H. Miner	108
Modern Railroads	107
Molded Fiber Glass	414
Moseback Manufacturing	301
John I. Moss	202
National Castings	222
National Electric Coil	326
National Steel	305
New York Air Brake	207
Oakite Products	156
Parker Seal	116
Pocket List of R.R. Officials	201
Power Parts	172
Pneutronics	324
Precision Engineering	112
Premier Manufacturing	159
Prime Manufacturing	147
Progressive Railroading	193
Pullman-Standard	142
Radiation	310
Railway Age	194
Railway Locomotive & Cars	194
Railway Maintenance	120
Railway Service & Supply	344
Republic Steel	432
Reynolds Metals	409
Rockwell Manufacturing	125
Rust-Oleum	334
Safety Electrical Equipment	168
St. Louis Car	203
Scullin Steel	307
Simmons-Boardman	194
Sloan Valve	163
Southern Iron & Equipment	210
Southland Mfg.	136
Standard Railway Equipment	228
Sterling Lacquer	428
A. Stucki	138
Super	180
Superior Diesel Filter	159
Swan Rubber	131
Transcontinental Railway Research	121
Transicold	139
TRW Thompson	325
Union Spring & Manufacturing	190
United Aircraft	329
Unity Railway Supply	158
Universal Railway Devices	175
Van Der Horst	429
Vanguard	335
Van Products	401
Vapor	205
Wabco	215
Waugh Equipment	146
Westinghouse Electric	402



HOW TO CONSOLIDATE YOUR CTC CONTROLS

One way to centralize dispatching with CTC machines is to move them to one location (above). However, circuits must be provided to furnish code line controls and voice communications from the former locations to the new central dispatching office. Another method of centralized dispatching involving centralized traffic control is to install new pushbutton control machines to handle territories formerly controlled by several smaller CTC machines (below).



What centralized dispatching can do for you

Among other things, it tightens control of operations and can cut operating expenses.

"Centralized traffic control" is an old and familiar phrase—but it's only recently that railroads have *really* been centralizing control, by bringing system dispatching operations under one roof.

Why the interest in this kind of centralization? A half-dozen benefits are available, because centralization can:

— Provide tighter control of operations.

— Make possible reductions in operating expenses.

— Enable railroads to improve car and power utilization, as the dispatching function becomes more closely coordinated with car-distribution and power-assignment functions.

— Make it possible for railroads to take greater advantage of improved communications technology.

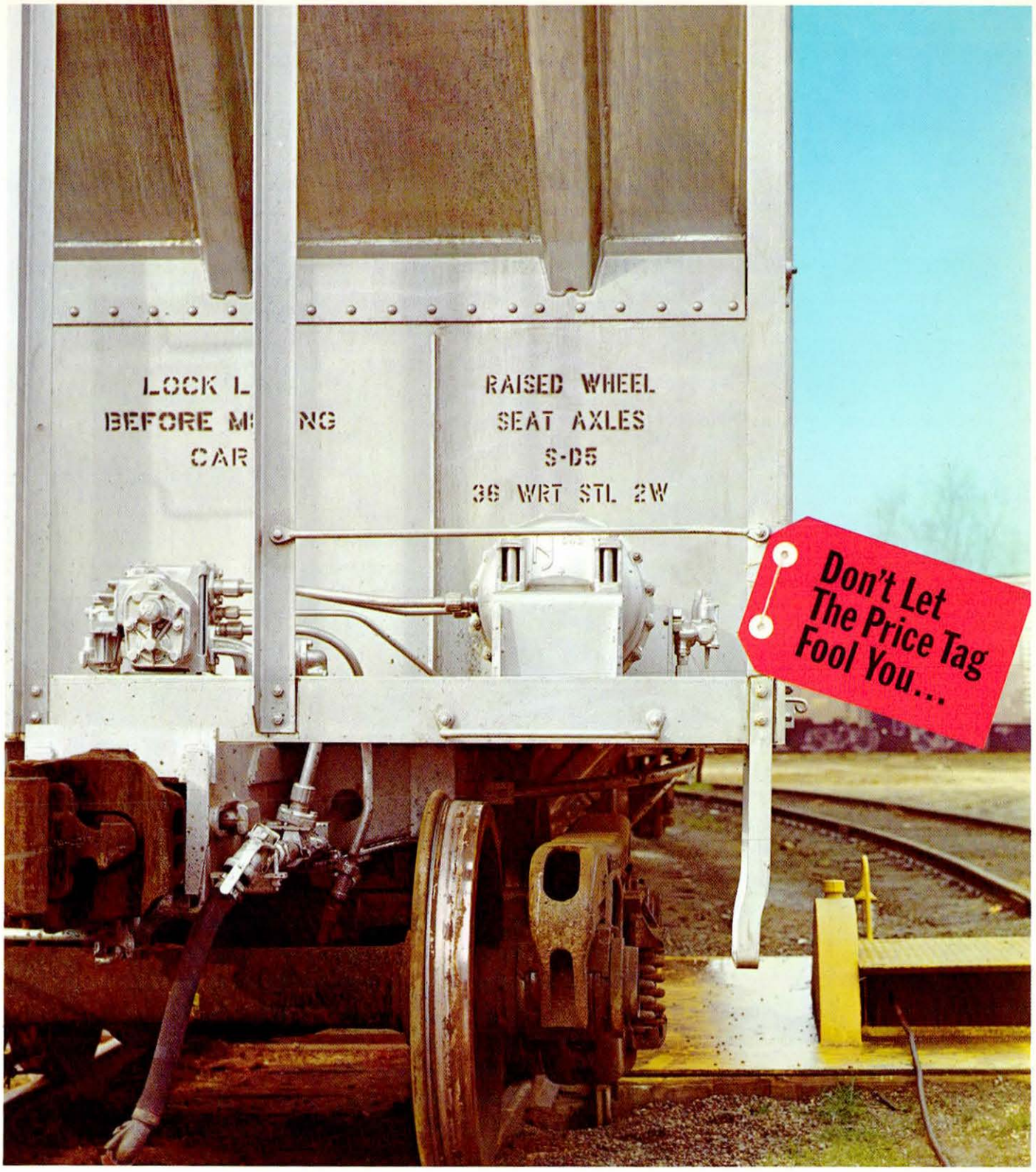
— Enable management to get the most out of improved signaling technology.

— Improve the efficiency of car-location and car-tracing systems.

As might be expected, the centralization of the dispatching function has important and often far-reaching impacts on railroads' operating, signaling and communications departments. It may also have an indirect, but nevertheless important impact upon service to shippers.

● **Meaning for management.** For rail managers, centralized dispatching provides better control of operations through improved coordination of efforts because dispatchers are located in the same office. Often, there is a reduction in the number of dispatching positions required.

(*Continued on page 61*)



aluminum cars are the least expensive freight cars you can own (or lease)

Experience–and cost accounting –prove aluminum cars will actually cost less and earn more over their lifetime than steel cars.

You do pay a premium, initially, for an aluminum freight car. It averages about $4,000 over the price of a steel car. (A recent bid showed a spread of only $2,300.) But when you consider the total cost of the cars and their revenue-producing capacity over their service lifetime, there's no question that the aluminum car has a major advantage.

Basic, of course, is the lower tare weight and higher capacity of the aluminum car. A 4,750 cu. ft. aluminum covered hopper can carry 13,500 lbs. more payload than a typical steel car of comparable size. In cars ranging from 2,600 to 2,900 cu. ft., aluminum gives you a 16,000 lb. payload advantage over steel.

Extra Payload Pays Off

With this sort of payload advantage, it doesn't take many trips per month for an aluminum car to produce a sizable extra revenue. The following table shows how much added revenue an aluminum car can produce on two-turn-arounds per month, with various per-ton rates:

Added Revenue Earned By Aluminum Covered Hopper Car Over Comparable Steel Car—Based on 6¾ Ton Bonus Payload

Rates Per Ton	Revenue Additional Per Trip	Revenue Additional Per Month	Revenue Additional Per Year	Revenue Additional Per 15 Years
$ 1.00	$ 6.75	$ 13.50	$ 162.00	$ 2,430.00
2.00	13.50	27.00	324.00	4,860.00
3.00	20.25	40.50	486.00	7,290.00
4.00	27.00	54.00	648.00	9,720.00
5.00	33.75	67.50	810.00	12,150.00
6.00	40.50	81.00	972.00	14,580.00
7.00	47.25	94.50	1,134.00	17,010.00
8.00	54.00	108.00	1,296.00	19,440.00
9.00	60.75	121.50	1,458.00	21,870.00
10.00	67.50	135.00	1,620.00	24,300.00

Thus, at the end of 15 years, with two-turn per month service and a conservative grain rate of $4.00 per ton, the aluminum car will earn $9,720 more than the steel car.

Lower Operating Costs

Extra earning capacity, however, is just one of the long-term financial benefits that aluminum cars give their owners. Substantially lower operating costs is another.

Because it is 13,500 lbs. heavier on the empty return trip, a steel car travels more ton-miles than an aluminum car in the same service. Ton-mileage, of course, is directly related to operating costs. With less ton-mileage, an aluminum car will require less train fuel, less locomotive maintenance and lubrication, less maintenance of way.

Maintenance Slashed

An aluminum car itself requires much less maintenance than a steel car. Aluminum won't rust, so the car needs no protective painting. Aluminum also resists corrosion and protects cargoes from contamination, so expensive interior coatings are not required. Interior coatings or linings for steel cars cost about $700 per application, and must be replaced several times during the life of the car.

Reynolds economists have estimated that an aluminum open hopper or gondola car in unit train coal service would save over $4,000 in maintenance costs in a 20 year period. This is because the average steel car's side sheets, slope sheets, and crossridge sheets must be replaced at least once in 20 years of coal service; experience indicates this is not necessary with aluminum coal cars.

Extra Dividend in Scrap

There is one more major financial factor to be considered with aluminum cars: scrap value. At the end of its service life, a typical aluminum-body car will yield about 15,000 lbs. of aluminum scrap. (The aluminum car is really an aluminum-body car, with 15,000 lbs. or 30% of its tare weight being aluminum.) Conservatively, an aluminum car would be worth $2,200 more in scrap value than a similar steel car.

Total Cost Analysis

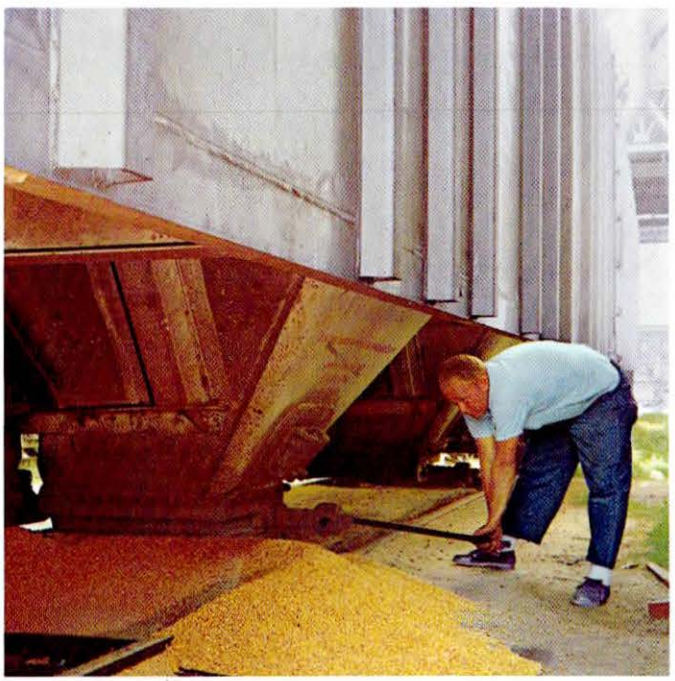
One railroad executive recently analyzed all these factors as they applied to 150 aluminum covered hoppers for general service. He found that the projected 15 year savings in operating costs, maintenance, and scrap value would completely cover the premium in first cost of the cars, and yield an extra savings of $97 per year per car. This study did not take the additional payload and revenue capacity of the aluminum cars into consideration.

Aluminum cars command higher per diem rates for off-line service, so their extra earning power is not limited to "captive" service.

Added Per Diem Revenue with Aluminum Cars

Year	Aluminum Car Value For Per Diem Per Unit (1)	Per Diem Rate	Steel Car Value For Per Diem Per Unit (1)	Per Diem Rate	Differential Per Diem Rate	Added Revenue For Aluminum Cars Per Unit Per Year (2)
1	$19,000	$6.15	$15,000	$6.15	—	—
2	18,430	6.15	14,550	4.50	$1.65	$ 297.00
3	17,860	6.15	14,100	4.50	1.65	297.00
4	17,290	6.15	13,650	4.50	1.65	297.00
5	16,720	6.15	13,200	4.50	1.65	297.00
6	16,150	6.15	12,750	4.50	1.65	297.00
7	15,580	6.15	12,300	4.50	1.65	297.00
8	15,010	6.15	11,850	4.50	1.65	297.00
9	14,440	4.50	11,400	4.50	—	—
10	13,870	4.50	10,950	4.50	—	—
11	13,300	4.50	10,500	4.50	—	—
12	12,730	4.50	10,050	4.50	—	—
13	12,160	4.50	9,600	3.58	0.92	165.60
14	11,590	4.50	9,150	3.58	0.92	165.60
15	11,020	4.50	8,700	3.58	0.92	165.60
Total						$2,575.80
Averages		$5.380		$4.426	$0.954	$ 171.72

(1) Straight line depreciation at 3% per year
(2) Assumed 180 off-line days per year



When a lease arrangement is preferred to outright purchase, Reynolds specialists work with the railroads and leasing companies to get interest rates comparable to—if not better than—those for steel cars.

If you're planning to invest in new freight cars, look at the total cost, the total earning power, of the cars. You'll see why more aluminum cars are going into service every year . . . more of them made with Reynolds Aluminum than any other.

The facts on the previous pages show how aluminum covered hopper cars reduce costs and boost revenue for their owners. Other types of aluminum cars offer these benefits, too: Open hoppers, gondolas, and tank cars all cost less to operate and maintain when they're made of aluminum—and have extra payload capacity, higher scrap value, as well.

The service records of these cars show that their day-to-day economies add up to long-term financial benefits.

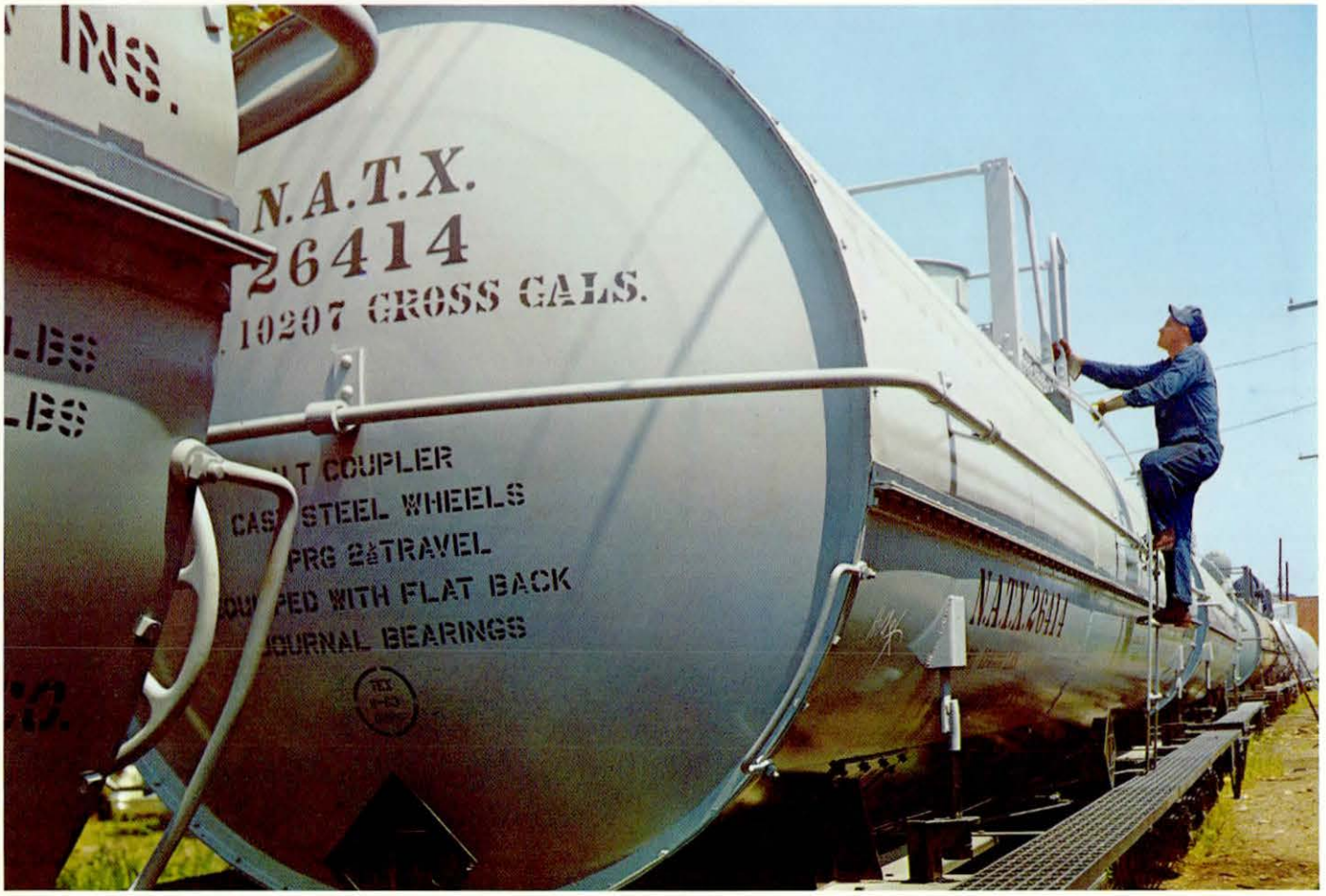
Aluminum's light weight, strength, and corrosion resistance pay important dividends in car components and special freight equipment as well as in rolling stock—as proven daily by aluminum car doors, crossmembers, and bulkheads.

Let a Reynolds railroad specialist show you the long-term advantages of aluminum cars and equipment. Contact your local Reynolds office for details or write Reynolds Metals Company, P.O. Box 2346-XY, Richmond, Virginia 23218.

Strong, lightweight bulkheads of Reynolds Aluminum guard bulky freight.

Gondola cars made with Reynolds Aluminum, in daily unit train coal service.

Tough Reynolds Aluminum helps tank cars serve longer with corrosive cargoes.



REYNOLDS
where new ideas take shape in
ALUMINUM

CENTRALIZATION IMPROVES EQUIPMENT UTILIZATION

(*Continued from page 56*)

The various departments of the railroad are in close physical proximity to dispatchers. True, electrical communications can bridge a space gap of miles, but face-to-face communication is often more effective and meaningful. Some railroads are locating their centralized motive dispatchers in the same or adjacent offices to the train dispatchers.

● **Meaning for S&C departments.** For the signaling and communications departments, centralized dispatching means more work to bring about the desired results. And it means more responsibility, in that reliable service is more important than ever. Communications must be very reliable. Some experts say that the communications must have a reliability as high as 99.999%. To achieve this, most roads with centralized dispatching have standby circuit facilities and alternate routings for normal circuit paths.

When dispatchers are moved to a central office, there is need for extending or adding communications circuits. If centralized traffic control is involved, there is the requirement on the signal department of either moving existing control machines to the new office or installing new machines to handle existing CTC territories. Some roads will purchase new pushbutton-type control machines because they are capable of handling more territory in less space than the older CTC machines.

● **Meaning for shippers.** Centralized dispatching should bring about more efficient movement of freight cars because the railroad will have "fingertip" control of over-the-road movements. There should be no appreciable delays in tracing cars that have left one yard but not yet arrived in the next yard, because all dispatchers are conveniently located in one office. No longer is it necessary to contact several dispatchers in offices scattered across the rail system. Although this may be an indirect benefit, it can be an aid to more efficient car tracing. This can be especially helpful if diversion or reconsignment is involved.

The central dispatching offices are usually located at the railroad's headquarters so that the dispatchers are in close proximity to car-distribution and car-tracing offices. Often, direct intercom facilities are provided between these offices.

● **Railroads, and transit, too.** Rapid-transit authorities are just as interested in centralized dispatching as are rail managers. Chicago Transit Authority's supervisory control system has been in service for several years. It monitors operations of the subway and elevated trains. CTA will shortly begin installation of a VHF radio system for monitoring bus operations. Both the rapid-transit supervisory control and the bus monitoring system are keyed to CTA's operating headquarters. Included in CTA and other transit systems is an electrical power load dispatching center.

Most widely publicized for centralized dispatching in the transit field, of course, is San Francisco's Bay Area Rapid Transit District project. Included in the computer control of dispatching will be power dispatching and automatic running of trains.

Toronto Transit Commission is working on a centralized dispatching facility for its rapid-transit system. Three adjacent rooms will provide centralized controls for interlockings and signaling, electrical power dispatching, and a communications center handling two-way radio, intercom and telephone communications throughout the system. Also included are station paging/speaker systems.

● **IC centralizes dispatching.** During a two-year period, dispatchers from six locations on the Illinois Central will be transferred to the road's Chicago headquarters. "The key to centralized dispatching is communications," says H. F. Davenport, assistant vice president, operation: "Improved telephone service via the railroad's new microwave network will make it possible to keep the dispatchers in Chicago in immediate touch with all parts of the system. Also, they will have the advantage of working closely at headquarters with the people who distribute cars and motive power, whereas in the past, time and distance created occasional problems. Centralized dispatching will give IC better coordination of its train operations, better utilization of equipment and better communication between the divisions and Chicago."

Move at company expense

IC dispatchers at Waterloo, Iowa; Vicksburg, Miss.; Paducah, Ky.; Memphis, Tenn.; and Carbondale and Champaign, Ill., will be moved to Chicago at railroad expense, Davenport said. About 80 dispatchers and clerical workers will be affected. He estimates a net reduction of only 10 positions across the system through the next two years, all by attrition.

The list of railroads that have centralized their dispatching function at one location includes Bessemer & Lake Erie, Boston & Maine, Frisco, Reading and Union. A centralized dispatching project is under way on the Pittsburgh & Lake Erie.

Railroads such as Burlington, Louisville & Nashville, Rock Island, Southern Pacific and Union Pacific are consolidating dispatchers' positions and working toward true centralized dispatching at one location. They have not yet achieved it, but they and other roads are at the point of having only a few dispatchers' offices. Part of this trend has been accelerated by consolidating divisions.

Also of help has been improved signaling technology whereby a modern pushbutton centralized traffic control machine can efficiently handle 300 or more road miles of line. Not only are control machines getting smaller, but advanced schemes such as automatic dispatching in CTC territories are also making it possible for one dispatcher to handle more road miles of line. Automatic dispatching is a system whereby meets and passes of trains in CTC territory are handled automatically by the system logic and controls.

Automatic dispatching is being very carefully scrutinized by computer experts as being a "natural" because programs have been developed for computer simulation of train operations in CTC territory.

● **How to do it.** Moving dispatchers to a central location takes more than just making the move of personnel and equipment. Much advance planning and careful coordination is involved, because trains must be dispatched and the railroad operated before, during and after the move.

Of major consideration is the communications function: The dispatcher must be able to communicate with the same persons at their same locations after the move as he did before. This requires that additional communications must be provided, namely electrical circuits, to connect to the new dispatching location. Requirements include voice communications via dispatchers' and message circuits, telephone selector and ringing circuits, teletypewriter facilities, VHF radio control and data links to bring in hot-box detector indications to readout equipment. If CTC is involved, then circuits to handle the control codes and indications from the control machine to the former control machine location are required.

Additionally, provision is usually made for alternate paths or backup circuits in case normal circuits fail. Also, standby communications circuits or facilities may be provided in case of emergency. Use of leased facilities of telephone and telegraph companies is often resorted to for providing backup or emergency usage.

During the actual moving process, communications must be maintained. Often this is accomplished via leased

circuits from the new location. If the new communications facilities are already in place prior to the move, some railroads have had one set of dispatchers operate from the old location and the dispatchers on the next trick take over at the new location.

When Rock Island consolidated dispatchers at El Reno, Okla., the actual physical transfer of train control from one of the old points was accomplished in a routine of ease and simplicity. C. J. Nelson, general superintendent, communications and signals, explains that "At 12:01 a.m. of the changeover day, we'd have two dispatchers on duty, one at El Reno and the other at the old point. The man at Liberal, Kan., or Kansas City or Fort Worth, would read all the train orders then in effect and the man at El Reno would copy them. Then, when the next trick came on duty at El Reno, he had a complete copy of all train orders in force, and took over running his portion of the railroad in a matter of minutes."

● **CTC control changes.** When CTC is involved, the centralization of dispatching is somewhat similar to that involving the communications aspect of the situation. If new CTC machines are to be installed at the new dispatching headquarters, the actual move is somewhat simplified. In this case, it is simply a matter of installing the new control machines and hooking them up to circuits that connect to the former dispatching offices. After complete operating and circuit checks are made, and all is correct, the new machine is put into service. And since the actual transfer of control in this type of condition requires operation of a transfer switch, the time element is not critical. Trains continue to run without any delays or interruptions. Dispatchers at the old locations operate their CTC machines, and then the transfer is made to the new machines. It does require dispatchers or CTC operators at both the old and the new locations during the same trick.

But if CTC machines are to be moved to the new dispatching center, then provisions must be made to operate trains during the actual move of the machines.

● **Move during light traffic.** One railroad moved a CTC machine 90 miles on a Sunday, when traffic was light and no local trains operated. During the move, a CTC test set was operated by a signal department employee, who translated the dispatcher's moves into codes and steps to operate the switches and signals at the desired end-of-siding or controlled locations. Several nonstop meets were made by the test set control. The CTC machine was taken out of service at 8 a.m. and put back in service at 11:30 p.m. the same day. It was crated and handled in a special train. To eliminate the necessity of changing the code numbers for controls and indications, two carrier communications lines were installed so that the DC control and indication codes fed in the same direction before and after the machine move.

Some roads often use flat-bed trucks for moving the CTC machines. Advantages are that special or work trains are not required, and the moving does not interfere with train moves. An eastern railroad took out a one-day insurance policy for $100,000 covering handling of the machine by cranes at both the old and new locations. And, a one-day $75,000 insurance policy was obtained, covering the actual move via truck.

When CTC machines are moved, plug connectors are installed at the old and new locations on all communications and signal wires connected to the machine. Thus, in a relatively short time, 15-20 minutes, a machine can be unplugged at the old site and re-connected in a similar time at the new location. All such wiring and connections are thoroughly checked before the move is made to see that proper electrical and circuit requirements are met.

One western railroad moved a CTC machine some 60 miles and had it out of service for only five hours. The time period selected was one in which all trains were moving over the line in one direction only.

● **Housekeeping important too.** Planning for a move includes provision (see checklist) for adequate space at the new centralized dispatching headquarters, air conditioning, lighting, sound deadening materials, facilities for testing and maintenance, and displays and readout devices. Communications with other offices and departments in the headquarters are also important.

Also, several railroads upon centralizing their dispatching at one office find it prudent to provide an alternate or secondary source of commercial AC power. Often, they install emergency standby power-generating equipment to function when the commercial power fails. Automatic cut-in of the standby power generator is often employed.

● **Computer tie-in for future.** With centralized dispatching at railroad headquarters, it is quite natural to make the next step of tying-in dispatching information to a computer for control and monitoring purposes. Some roads are already making studies of the possibility of having computers take over routine CTC machine operations. In such cases, the dispatcher would take over when unusual conditions or emergencies arise.

Some experts are of the opinion that all dispatching information concerning train locations could be fed into computers. Instant retrieval via printout or visual display techniques (including CRTs) would be able to provide status reports at any time concerning train moves.

With such computer usage and monitoring, exception reports could be automatically generated when trains are behind schedules. With computer simulation of CTC operations, the actual train performances would be checked against the simulation using that simulation as a standard.

Railroads are moving into centralized dispatching, and it appears that most roads will have such centralized control in the not-too-distant future. With installation of ACI scanners, such train identification information could be fed directly to computers, providing further refinement of accuracy of train-movement reporting. ■

CD checklist: What's involved in centralizing dispatching

COMMUNICATIONS:

- Voice and teleprinter circuits.
- Telephone selector and ringing circuits.
- VHF radio control circuits.
- Alternate and/or standby circuits for emergency usage.

SIGNALING:

- Centralized traffic control code lines to handle controls and indications.
- Voice communications superimposed on code lines for maintenance usage.
- Data links for handling hot-box detector indications.
- Alternate and/or standby circuits for emergency usage.

HOUSING:

- Adequate space for dispatchers' positions. CTC machines, signaling and communications equipment.
- Air conditioning.
- Fluorescent ceiling lighting and proper lighting at individual work areas.
- Acoustical ceiling and walls for sound deadening.
- Standby power plant and/or alternate sources of commercial power for emergency use.
- Facilities and equipment for testing and maintaining signaling and communications equipment and facilities.
- Displays, readout devices, and intercom facilities for communicating with other headquarters departments.

from Marquardt Industrial Products...

THE NEW PULSE MODULATED TRACK CIRCUIT

MIPCO INTRODUCES the Pulse Modulated Track Circuit, a new solid state audio frequency system now available in configurations which operate compatibly ***with A.C. or D.C. electric propulsion currents, D.C. coded track circuits, A.C. signal circuits, and coded cab signals.*** This latest MIPCO addition to a broad line of electronic grade crossing and signal control systems operates on a unique pulse modulation technique which overcomes external interference problems characteristic of conventional tone devices. Requirements for insulated joints and impedance bonds are minimized or eliminated entirely, depending upon specific applications.

FEATURES OF THE MIPCO PULSE MODULATED TRACK CIRCUIT

- Eliminates most insulated joints and impedance bonds!
- Up to 11 operating frequencies with selective pulse modulation rates!
- Increased power output; low power drain!
- Maximum operational security through a digital code modulation system!
- Reliable fail-safe operation under extreme environmental conditions!

Ask your MIPCO representative about the PMTC family of products and the complete line of electronic track circuits and grade crossing protection systems designed for your specific applications.

MARQUARDT INDUSTRIAL PRODUCTS

SYSTEMS AND COMPONENTS
TO SERVE
THE RAILROAD INDUSTRY

MIPCO offers an expanding product line and diversified services to meet the continuing demand for modernization by the railroad industry. Call upon MIPCO for new systems and components for improved, efficient service at lower operational and maintenance costs.

Signals & Controls Division
9271 Arrow Highway
Cucamonga, California
- *Grade Crossing Predictor Systems (GCP)*
- *Electronic Track Circuits (ETC)*
- *Pulse Modulated Track Circuits*
- *Constant Voltage Rectifiers*

Chicago Division—Communications
(formerly R. W. Neill Company)
4320 West Montrose Avenue
Chicago, Illinois
Communications
- *Communications Systems for Railway Classification Yard Applications*
- *Communications Consoles, Voice Paging Systems, Loud-speakers, Related Components*
- *Radio Control Equipment, Solid State Amplifiers, Remote Line Test Units, Power Supply Systems*

Howard & Gould Rectifier Products
- *Signal Rectifier and Transformer Systems*
- *Tie-boring and Bonding Drills*

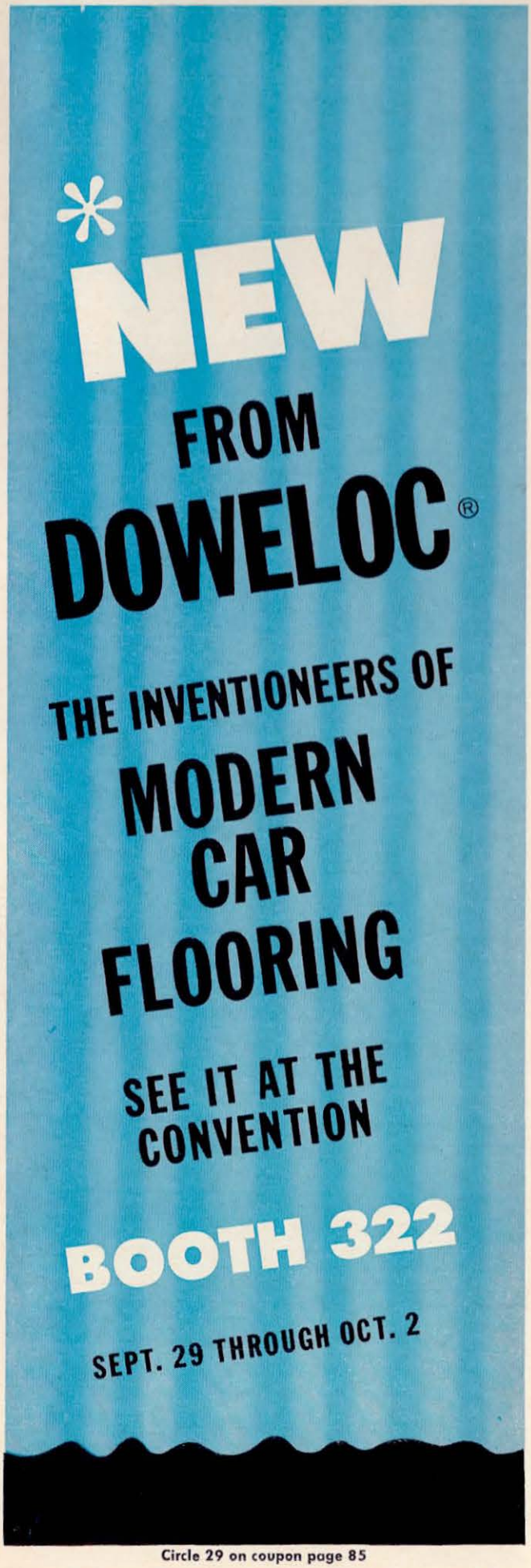
REGIONAL OFFICES:
Chicago:
Signals & Controls—100 S. Wacker Dr.
Communications—4320 W. Montrose Ave.
Philadelphia:
1617 John F. Kennedy Boulevard
Jacksonville, Florida:
1914 Beachway Road

Canadian Representatives:
Signals & Controls:
Vale Enterprises, Ltd.
1120 Claire Crescent
Lachine (Montreal), Quebec, Canada
Communications:
National-Sound Services, Ltd.
1785 Bois Franc Road
Montreal 9, Quebec, Canada

RPI RAILWAY PROGRESS INSTITUTE

MARQUARDT INDUSTRIAL PRODUCTS CO.

Circle 28 on coupon page 85



Circle 29 on coupon page 85

Programs of the Coordinated Associations

The Coordinated Associations will meet in Chicago's Sherman House, Sept. 30-Oct. 2. The annual luncheon will be held on Wednesday, Oct. 2 at 12:30 p.m. Guest speaker at the luncheon will be J. P. Hiltz, Jr., chairman of the National Railway Labor Conference.

Among those who will address the various sessions of the four Associations are H. W. Hayward, chief motive power and rolling stock, Canadian Pacific (Air Brake Association); G. W. Hansen and T. R. Klingen, respectively superintendent car repair and senior vice president of the Soo Line (Car Department Officers Association); G. F. Bachman, chief mechanical officer, Elgin, Joliet & Eastern, and J. W. Hawthorne, assistant vice president-equipment, Seaboard Coast Line (Locomotive Maintenance Officers Association); J. E. Hall, Jr., supervisor locomotive operations, Chesapeake & Ohio/Baltimore & Ohio, and C. V. Cowan, vice president-operations, C&O/B&O (Railway Fuel and Operating Officers Association).

Technical sessions of the meetings have been arranged to allow a free morning or afternoon to permit members to visit the suppliers' exhibits. (A list of exhibitors and the locations of the exhibits are shown on page 54-55 of this issue of Railway Age.)

Here are some of the subject highlights from the agenda of each of the meetings of the four associations:

AIR BRAKE ASSOCIATION—Sept. 30, 2 p.m.,—Locomotive simulator; Method for determining a universal brake pipe pressure; Operation of remote multiple-units in Mountain Territory. Oct. 1, 9 a.m.—Freight train braking level; Latest innovations in empty and load braking; Utilize full-term performance. 2 p.m.—Effect of higher brake pipe pressures on leakage and the testing of freight cars. Wednesday, 9 a.m.—Questions and answers.

CAR DEPARTMENT OFFICERS ASSOCIATION — Sept. 30, 10 a.m.—AAR loading rules. 2 p.m.—TOFC/COFC; Repair track and train yard operation; Wheels, axles and wheel shop practices. Oct. 1, 9 a.m.—Passenger and commuter equipment; Car lubrication; Protective coatings. Oct. 2, 9 a.m.—Freight car equipment; Controlled temperature atmospheric systems.

LOCOMOTIVE MAINTENANCE OFFICERS ASSOCIATION—Sept. 30, 10 a.m.—Fuel and lube oil. Oct. 1, 9 a.m.—Diesel mechanical maintenance; Shop equipment; Diesel material standardization and control. 2 p.m.—Electric M-U train maintenance; Diesel electrical maintenance. Oct. 2, 9 a.m.—New developments in motive power; What's your problem?

RAILWAY FUEL AND OPERATING OFFICERS ASSOCIATION—Sept. 30, 2 p.m.—Safety; Panel discussion: Operating rules. Oct. 1, 9 a.m.—Panel discussion: Locomotive operation and train handling. 2 p.m.—Power brake law and related subjects; Composition brake shoe; Apprentice engineer training program; Remote multiple unit control. Oct. 2, 9 a.m.—High speed trains; Panel discussion: Supervision of enginemen—how and why.

'Diversify' is the order of the day

Diversification—among railroad and rail-supplier owners—takes many forms, as well as many inches of space on the financial pages. In recent days, there was this lineup, dutifully reported:

—Illinois Central Industries, parent of IC, plus Abex Corp., a diversified manufacturer which still does a big business with railroads.

—Union Tank Car plus one of the nation's largest credit-information clearing houses, and Union Tank plus a land-development business which involves $16-million worth of real estate in Southern California.

—General American plus one of Chicago's major banks.

• **ICI plus Abex.** For IC Industries, acquisition of Abex would be by far the most ambitious diversification step yet undertaken. ICI made its first move three years ago, picking up Chandeysson Electric Co., and its second this year, acquiring Waukesha Foundry Co. Both acquisitions, however, look small in comparison with the plan to bring in Abex, which had total sales of about $275 million last year.

The ICI-Abex merger agreement has some distance to travel. Merger is subject to development of a definitive agreement, and the approvals of directors and shareholders of both companies. Some observers also raised the question of governmental interest, on antitrust grounds related to ICI's parenthood of Illinois Central Railroad and Abex' role as a major rail supplier. Others, however, pointed to the shrinking dependency of Abex upon the rail market—and to the assumption that the two companies would hardly have gone ahead with merger planning if antitrust considerations had been regarded as a major problem, after analyses of the situation had been made.

Meanwhile, IC was facing railroad opposition on another consolidation front—with Missouri Pacific's decision to oppose Illinois Central/Gulf, Mobile & Ohio merger added to opposition previously expressed by Kansas City Southern and several small lines. Hearings on this proposal are now set to begin Nov. 12.

• **Union Tank, credit, land.** For its part in the diversification story, Union Tank came up with two new ventures within a week. First, Union unveiled a plan to acquire the Credit Bureau of Cook County, Inc., Chicago-based clearing house which serves about 4,000

LUTHER MILLER

AS THE EDITOR SEES IT

MORE RAILROAD BUNGLING?—You read in the papers (as customers of the New York Times did last week) that one Southern Pacific station "shuts down and turns out the lights 11 minutes before the 'City of San Francisco' is due to arrive"—a direct quote from the ICC report ordering continuance of that train for one more year. At another station "the reservations switchboard shuts down at 7 p.m. and cuts off all conversations." It's pretty shocking stuff. You read newspaper stories like this and are inclined to say, "Well, we've bungled it again."

OR JUST A BAD PRESS?—But is it possible that the sins of the SP might look a little less scarlet in some broader context? Did the ICC record no extenuating circumstances? People who have easier access to newspapers than to ICC documents may never know. So we would like to help set the record straight.

WHAT THE TIMES DIDN'T SAY—If The Times reporter had been less anxious to portray the SP as a railroad that simply doesn't care, and more anxious to get at the truth, he might have picked up the following revealing statement from the same page of the ICC report: "Executives of seven corporations . . . testified that their officers and employees make more than 920 business trips annually along the route of the trains. *All of that travel is now by commercial airlines.*" (Italics supplied.) Does this suggest that the SP may have a reason for not keeping its stations and switchboards open around the clock to serve the throngs who are supposed to be fighting to get aboard SP trains? The average reader will never know.

"CONVENIENCE AND NECESSITY"—Another intriguing passage in this ICC report—which also covered Western Pacific's petition to abandon the "California Zephyr"—appears to have escaped the eagle eye of reporters for the dailies. These reporters commonly arrive at the conclusion that the ICC has ordered continued running of the subject trains because they are vital to travelers. The ICC said no such thing. On the contrary, it defended the "California Zephyr" not as an essential workhorse, but as "a national institution" which "provides breathtaking views of some of the finest scenery in America viewed from the comfort of luxury trains." And the Commission drove home the point: "Contrary to the suggestions of the carrier, patronage based upon such [esthetic] considerations is as much determinative of public convenience and necessity as patronage by persons seeking minimum transportation." A national institution, yes; breathtaking scenery, no doubt about it. But is this any way to run a railroad? The ICC apparently thinks so.

WALTER TAFT

WATCHING WASHINGTON

SETBACK FOR FORWARDERS—It seems now that the freight forwarders will have to wait until next year at least for the authority they seek to make contract rates with the railroads. That prospect loomed when the ICC changed its position, from neutrality to opposition, on necessary amendments to the Interstate Commerce Act. There are other formidable opponents, too—some railroads, the trucking industry and shipper interests, including the National Industrial Traffic League.

ICC'S POSITION—These opposition presentations were made at recent hearings on the Senate version of the implementing bill—S.3714. The hearings were held by the Senate Commerce Committee's Surface Transportation Subcommittee. They were featured by Chairman Paul J. Tierney's revelation of the Commission's new opposition position. Meanwhile, the position of the Department of Transportation remains one of neutrality.

THE FORWARDER PROPOSAL—As briefed by Tierney, S. 3714's substantive provisions include those which would amend the Act's Section 409 to authorize forwarders to enter contract-rate arrangements with railroads on an unrestricted basis. Section 409 now prohibits such arrangements, but it does permit forwarder-trucker contract rates on restricted bases.

PLAN I PIGGYBACKING THE KEY ISSUE—As Tierney pointed out, the forwarders' top objective is to expand their participation in railroad piggyback services. They have felt frustrated by the Commission's present piggybacking rules which bar them from participation in Plan I. That's ramp-to-railroad movement of motor-carrier trailers or containers under contract-rate arrangements. Forwarders are challenging the legality of these arrangements, but they want in on them pending disposition of their appeals to the courts.

FORWARDERS NOT HURTING—In recording the ICC's new position, Chairman Tierney said the Commission has no evidence that the forwarders' inability to use Plan I has resulted in significant impairment of their ability to compete with truckers. And the NITL representative—Fred H. Tolan, vice chairman of the League's legislative committee—warned that the proposed legislation could result in "excessive pressures" on railroads to take forwarder business at rates "inconsistent with economically sound operations." Tolan followed through to express NITL fears that the railroads would then be forced to raise rates on other traffic.

members in the metropolitan area. Then, speaking before the New York Society of Security Analysts, Union Tank's president, J. W. Van Gorkom, said his company is also moving into the land-development business, with purchase of two tracts in southern California at a total cost of $16 million.

Planned growth, Van Gorkom indicated, was the key element in both projects.

Union Tank, he said, "believes the credit-information field has exciting potential, since the country is moving ever closer toward a credit society. The use of modern computers for information retrieval offers an important technological breakthrough in this field, and under Union Tank direction the bureau will make extensive use of this technology. CBCC is now working on a $3-million computer modernization program for completion in about a year.

Union's second project—land development—is one which came about only after extensive study, according to Van Gorkom. In searching around for new fields for capital and management investment, he indicated, Union found the so-called glamor fields either over-priced or picked over—and the search led to land development, "which was approached with some skepticism. Months of analysis forced the company to conclude there was very definitely an opportunity for satisfactory profits in certain segments of the field."

Neither the credit service nor the land project, he said, "will provide material earnings per share immediately. But they exemplify a part of our growth philosophy. We believe that if we are to attain our financial objectives, we must continue to make such investments each year so that eventually the cumulative effect of their growth will produce the substantial increase in earnings per share that we seek."

● **GATX and a bank.** While ICI was looking at manufacturing and Union Tank at two kinds of service industries, General American was making a new move toward the banking business, specifically toward Chicago's LaSalle National Bank.

The GATX offer involves an exchange of LaSalle common stock for a new $2.50 cumulative voting preferred which would be convertible into GATX common. If more than 50% of LaSalle stock is tendered, GATX would accept the total tendered; but it would reserve the right to accept or reject all shares tendered if the total falls under 50%.

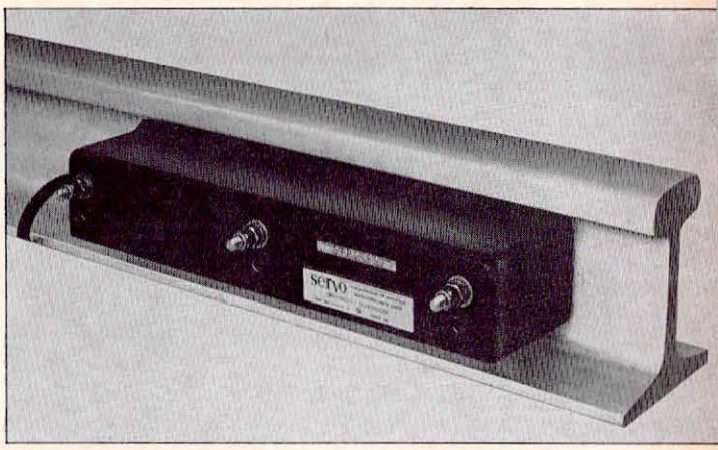
General American, like Abex, has been moving toward lesser dependence on railway-supply sales. While continuing to push railcar leasing, it has acted to phase-out freight-car construction. And, it has gone into other leasing fields, through subsidiaries. ■

"According to the extensive calculations of our C&S department, Servo's new magnetic transducers oughtta be installed right about here."

ANY railroad man, from our lonely friend of 100 years ago to his modern counterpart of today, could be expected to ask the question: "But what will Servo's transducers do once they've been installed?" And that brings us right to the point.

SERVOPOLE® and SERVOTRIP® rail-mounted transducers are variable reluctance magnetic sensing units capable of detecting wheel presence on railroad rolling stock. Passage of a wheel over the transducer generates sufficient power to energize a relay directly, without signal amplification. Actual contact with the wheel flange is not required. These new transducers have been designed to serve as basic building blocks for a wide variety of railroad control systems. Typical applications include: speed selective grade crossing controls; transducer track circuits; grade crossing restart control; track shunting; classification yard carstop retarder control; car and train arrival annunciators; car and axle counting; train length measurement; speed and acceleration measurements. In each of these and many other applications, the basic signal to the control system is simply and reliably derived from the magnetic transducer, which operates completely independent of track ballast conditions.

Would you like to know more about these versatile units, including technical description, specifications and application notes? Just ask for Tech Data Publication 2016.



SERVOPOLE® Rail-Mounted Magnetic Sensing Transducer is a dual-segment unit for use where directional information is required. Another model, SERVOTRIP®, is a single-segment transducer for applications where direction sensing is not required. The transducers have no moving parts—all internal components are encapsulated and mounted in a rugged fiberglass-reinforced housing. A complete selection of associated control units is also available from Servo, including: timers, directional sensors and analyzers, speed selectors, relays, etc.

SERVO SYSTEM SERVICE—Servo Corporation of America backs up its railroad products with complete support and assistance—site survey, application engineering, detailed proposal, installation checkout, plus lifetime service and personnel training—all provided at no extra charge!

servo corporation of america

servo

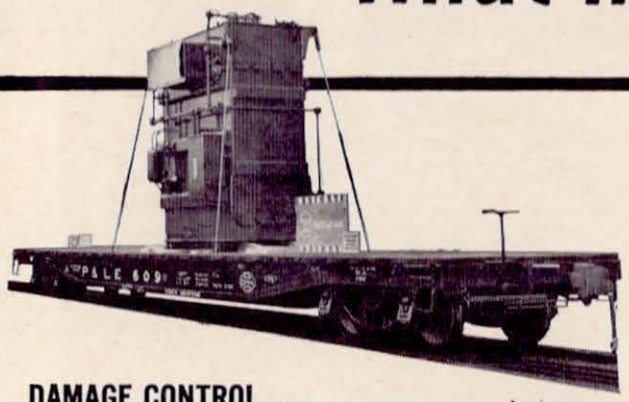
railroad products
111 new south road
hicksville, n.y. 11802
516-938-9700

MEMBER RPI RAILWAY PROGRESS INSTITUTE

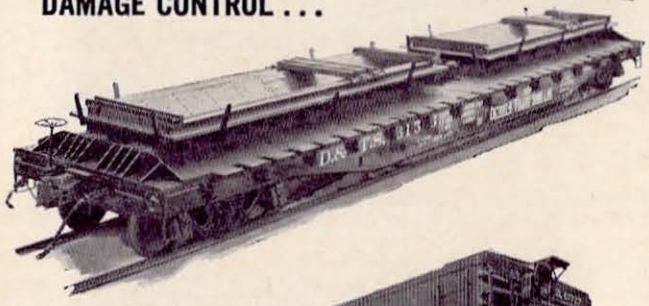
Circle 31 on coupon page 85

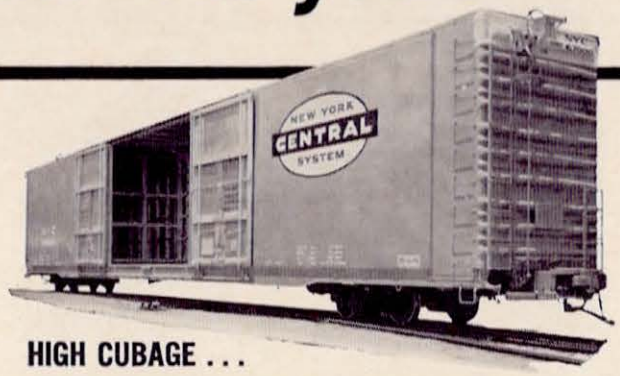
Some cars do the job better than others. The increase in utilization and efficiency

What interests you?



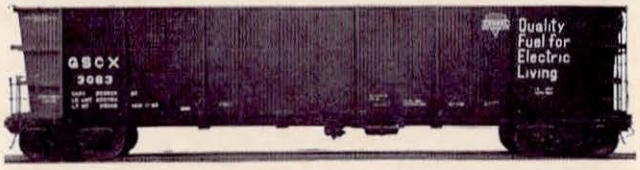
DAMAGE CONTROL . . .

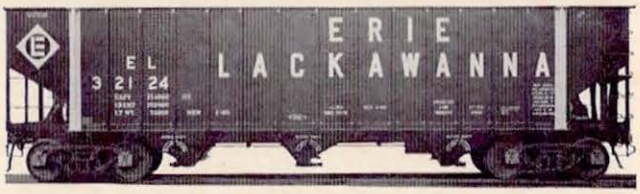


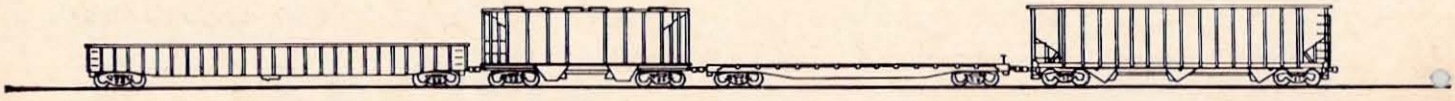


HIGH CUBAGE . . .

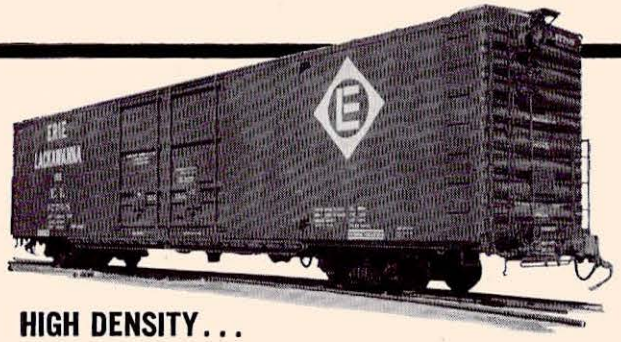
UNIT TRAINS . . .





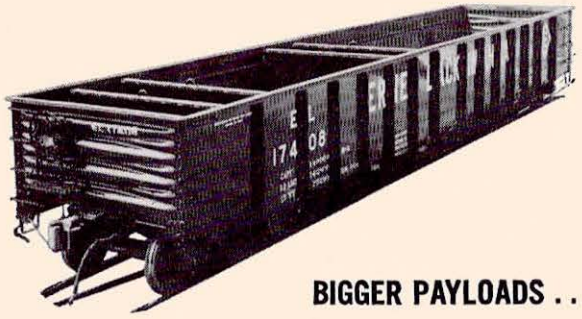


can make a big difference.



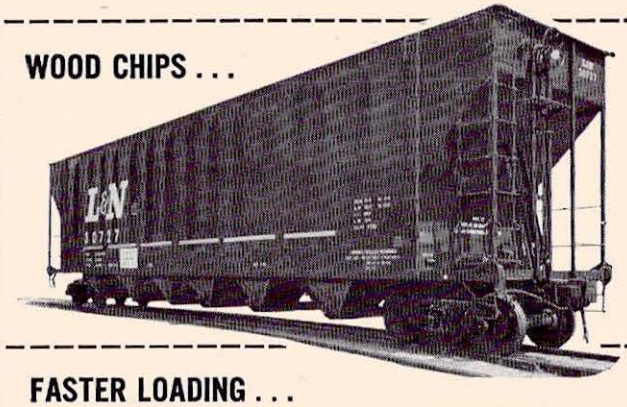
HIGH DENSITY...

TENELON...

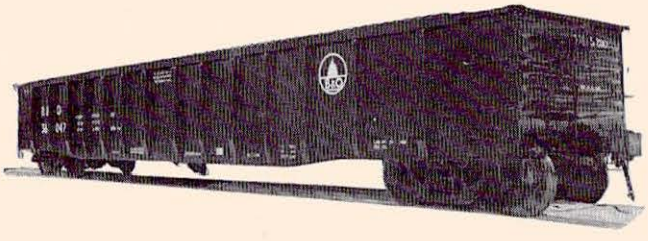


BIGGER PAYLOADS...

WOOD CHIPS...



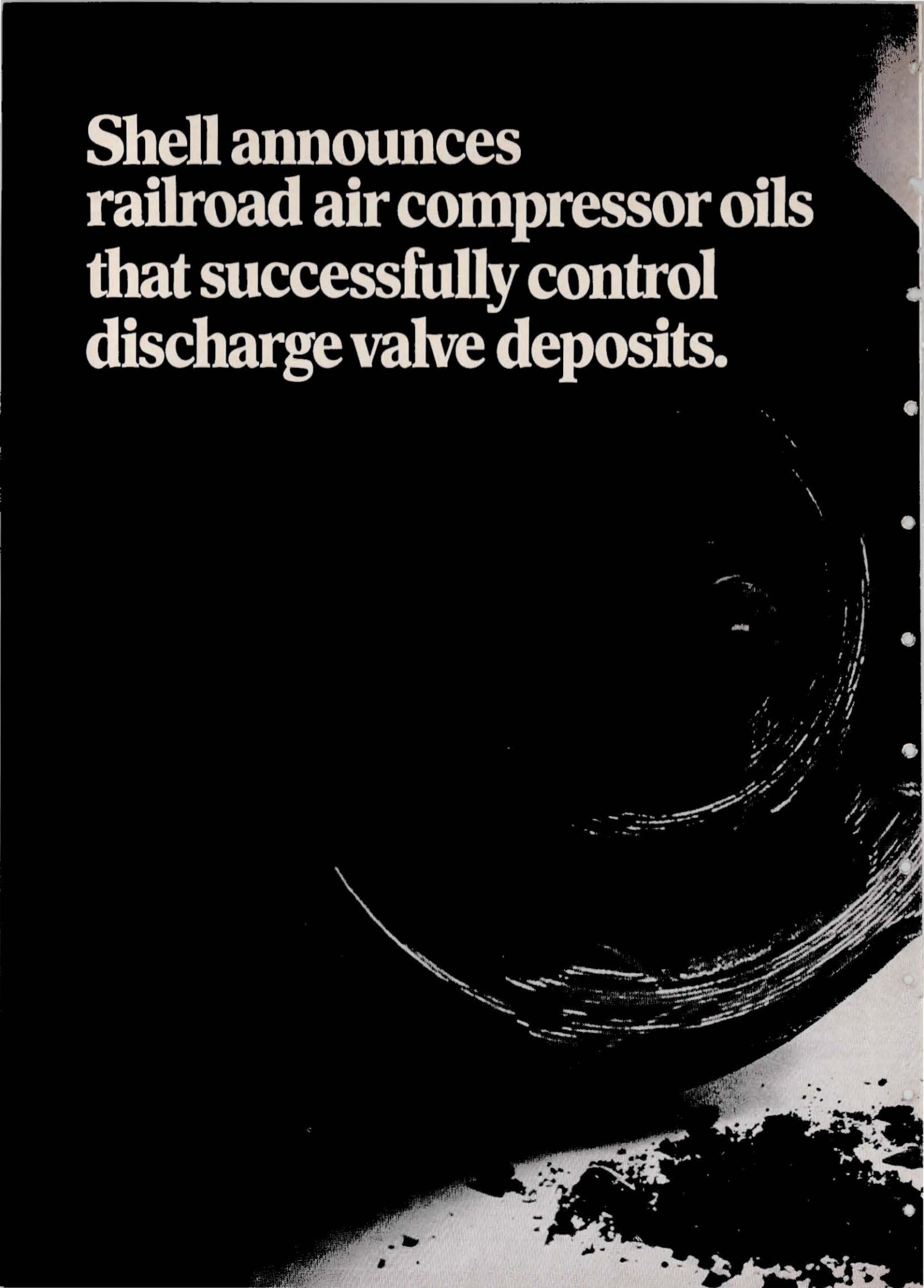
FASTER LOADING...

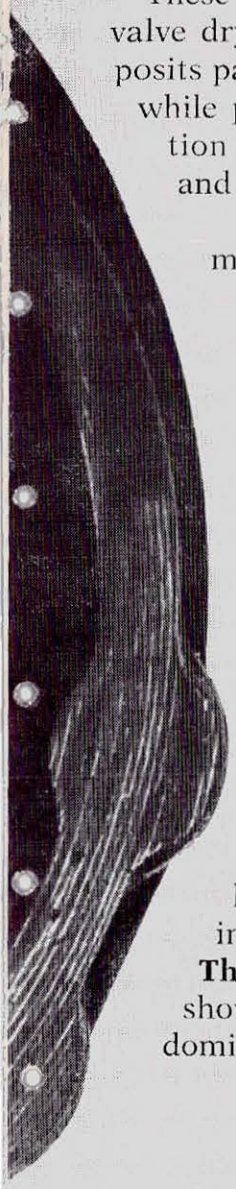


Each of these Greenville cars offers a more efficient way to move cargo. They represent the rare combination of versatile car designs and production skills which make Greenville an uncommonly good place to start in selecting the best car for the job. A car doesn't have to be a special to be efficient. A Greenville modified standard may do the job just as well. What will help you most? Talk to Greenville about it. The answer may already exist.

GREENVILLE STEEL CAR COMPANY
Subsidiary of Pittsburgh Forgings Company
GREENVILLE, PENNSYLVANIA

Shell announces railroad air compressor oils that successfully control discharge valve deposits.





Breakthrough: New Shell railroad air compressor oils minimize discharge valve deposits—in some cases, eliminate them.

These new oils work to keep the discharge valve dry. This minimizes wet oil and deposits passing into the braking system—all while providing high-temperature oxidation protection, excellent lubrication and low oil consumption.

Advantages: significantly lower maintenance costs, safer operation, increased equipment utilization.

Cause and cure. Discharge valve deposits are mostly oxidized oil. This is the main reason why conventional air compressor oils are blended for oxidation stability.

Then how come, Shell scientists asked, heavy deposits are often found in compressors using highly stable oils?

Answer: Oxidation stability, while needed to minimize lacquer and varnish formation, is not the only factor involved in discharge valve deposits. These deposits, Shell discovered, are related more to the time that the oil is in the hot zone of the compressor.

The troublemaker. Further research showed that *volatility* of the oil was the dominant factor. "Heavy end" oil fractions of low volatility were pinpointed as the primary source of discharge valve deposits.

Result: Each grade of Shell Railroad Air Compressor Oil is blended in a *narrow* volatility range. Each grade meets the volatility needs of the particular viscosity required.

Three viscosities available. Shell Railroad Air Compressor Oil 27, SAE 10W grade, is designed for all deep-sump Gardner-Denver air compressors. We recommend it where an SAE 10 oil is required under warranty.

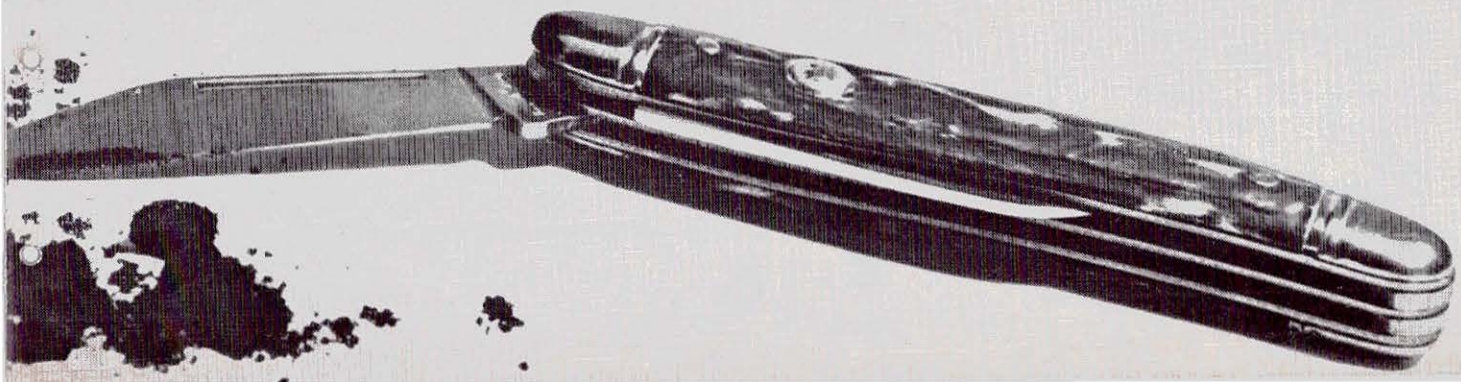
Shell Railroad Air Compressor Oil 33, SAE 20 grade, is designed for Westinghouse water-cooled air compressors. We recommend it where an SAE 20 oil with 0° F pour point is required under warranty.

Shell Railroad Air Compressor Oil 41 is an SAE 30 oil, 0° F pour point, for use in all makes of air-cooled compressors and small-sump, water-cooled conversion compressors. We recommend it where warranties do not specify other grades, in the interest of simplified inventory.

Call one of these offices. For details, call the nearest Shell Railroad Representative: New York (212) 586-6000; Chicago (312) 341-3275; San Francisco (415) 392-5400. Or write: Shell Oil Company, Department RN/U, P. O. Box 1890, Trenton, New Jersey 08607.

MEMBER RPI RAILWAY PROGRESS INSTITUTE

SHELL



'Flip-Top' is ready to go

(*Continued from page 47*)

modate any type of phosphate or dry product. A rubber-fendered dock for support of the traversing ship loader and standby berth are other features of the installation.

The conveyor system, including recovery from storage, has been designed to handle 3,000 tons of phosphate rock per hour. The dumper operator may route materials either to storage or directly into ship's hold by remote control of two-way gates in the conveyor lines. The unloading capacity of the facility can be doubled, if desired, with space provided for the addition of a second ship loader.

• **A "model yard."** The supporting track system for the terminal, says SCL, is a model of yard efficiency. Trains arriving at the terminal are moved directly to the gravity hump for automated classification, and grouping on pre-determined tracks according to the type of product, producer and other factors. The road locomotives are cut off to pick up empty cars for the return trip to the mines. A backup yard prepares cuts for unloading.

Actual loading of incoming ships is handled at dockside by a traversing ship-loader spanning 185 ft from shore to dock. Travel of the loader along the face of the dock is 600 ft. The loader boom is equipped with a shuttle conveyor fitted with a telescoping chute and rotating deflector spoon for loading everything from small barges to the largest ships. Maximum reach from the face of the dock is 72 ft. The entire conveying system is under the control of one shiploader operator located in an air-conditioned control room on the front mast of the loader. Complete paging and instant talk-back communications setup link the main office, stevedore's office and all operators along the system.

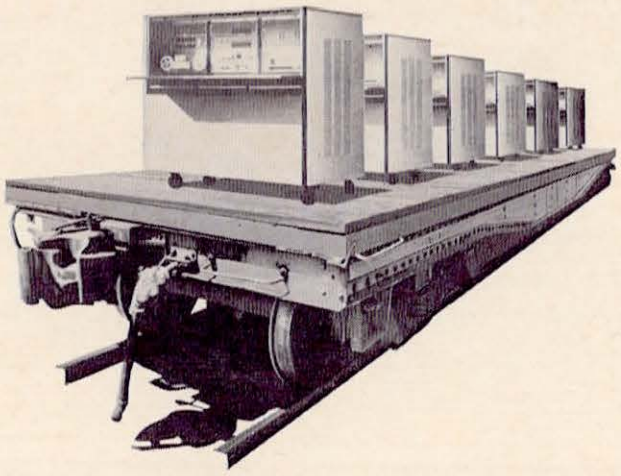
• **A booming industry.** Florida's phosphate industry is booming. The Bone Valley pebble phosphate district covers a 2,000-square-mile area east of Tampa, centered in and around Bartow, and is owned by nine phosphate producers. The area is covered with a network of SCL tracks serving mining areas and phosphate processing installations. The rail lines also connect the mining area with fertilizer and chemical manufacturing plants along Florida's West Coast, immediately east and south of Tampa.

Florida has led the world in production of phosphate since 1894. Three-quarters of all production of phosphate rock in the United States comes from Florida, with 30% to 35% being exported. In 1961, Florida produced 14 million tons of phosphate; in 1965, 18 million tons; in 1966, 20 million tons; and an estimated 25 million tons in 1967. The U.S. Department of Commerce estimates that world consumption of phosphate will double by 1975 and triple by 1980.

SCL officers say that "over 20% of our revenues come from the transportation of phosphate and other related products. Bone Valley has many new phosphate processing facilities and others are being planned." Mining has already extended north of Lakeland in Polk County. The SCL's traffic department is working closely with the industry in the location of new facilities and opening new mining areas.

Summarizing, SCL says: "In our role as major carrier of phosphate and phosphate products, maximum car utilization will be significantly improved by the flip-top car, rapid unloading and quick turnaround handling of empties. With our new complex, the future looks bright." ■

Production SEARCH* is 2 years old ...SEARCH Testing is 5 years old!



SEARCH production hardware was preceded by 3 years of prototype field testing—but it was worth it...

...just ask the SEARCH-equipped railroads that *are* using SEARCH 'round the clock. They're realizing *savings*...savings through more complete maintenance management—plus much quicker and more thorough maintenance, and increased fleet effectiveness.

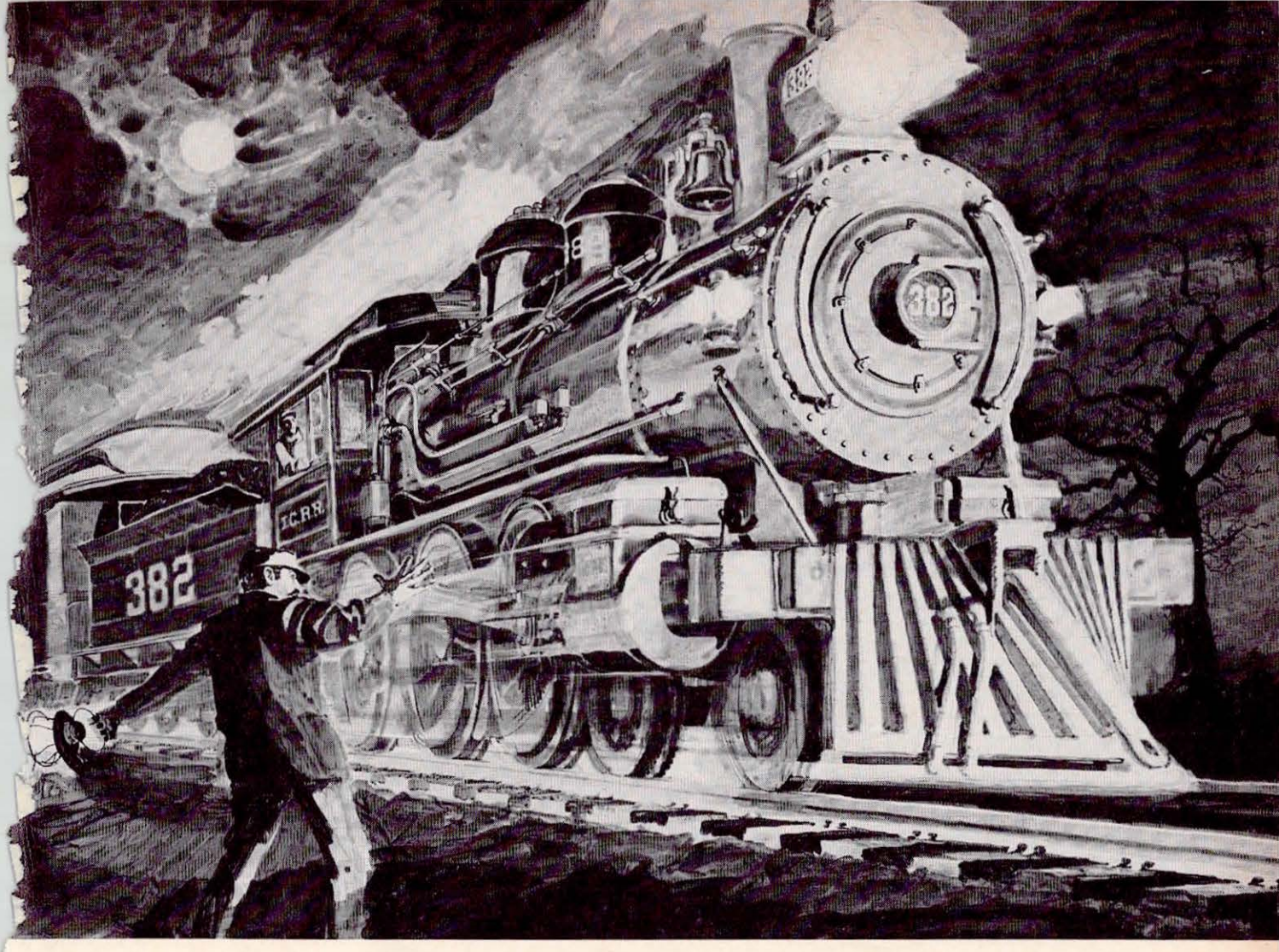
Railroaders call SEARCH a maintenance tool... a tool that automatically checks all electrical wiring and components in today's and tomorrow's locomotives and verifies that locomotive performance meets specifications.

How come your railroad isn't saving with SEARCH too? For more details and *Field Result Data Reports* contact our SEARCH Marketing Department.

**Trademark of Dalmo Victor, A Textron Division*

DALMO VICTOR 1515 INDUSTRIAL WAY · BELMONT, CALIFORNIA 94002 A textron DIVISION

Circle 34 on coupon page 85



Remember her?

During the two brief months that Casey Jones mounted the cab of engine No. 382, the Cannonball Special became a legend in its own time. With Casey at the throttle and 21,922 pounds of traction from her six massive 69-inch drivers, she roared to a reputation as one of the Illinois Central's fastest passenger trains.

On a foggy April morning in 1900 she smashed into the last four cars of a freight in a wreck immortalized by the folk song. After the wreck, which took Casey's life, she was rebuilt and continued her famous career until 1935. Then she chuffed into history with Casey.

There's another kind of history being written today in railroading. It's the economy story of piggyback cars, unitrains, fast, roller bearing freight, and the high-power diesel-electric locomotives that pull them. And Humble is providing railroad people with the modern petroleum products they need.

But we'll never forget the days of steam, because most of our people started then. In the shops.

Above all, we've never forgotten how to give you the kind of service that only a railroad man knows how to give. Humble railroad man is [illegible] know, whether [illegible] trains of yes[illegible]

Humble Oil & Refining Company . . . The People [illegible]

Financing car programs

(*Continued from page 52*)

rack car, which has restored so much automobile traffic to the railroads is open to question. This is because the rack itself, which represents about ⅓ of the car's total cost, must be extensively reworked annually when the automobile model is changed.

Because of simultaneous pressures to reduce costs and increase volume—all transportation including rail—has become more and more capital-intensive and less and less labor-intensive. It is, in fact, via equipment investment that rail service has achieved much of its presently capital-intensive nature. But maybe it's time to hold back on this headlong rush to buy new equipment, and take another look. Perhaps our extensive equipment investments have hidden the need for looking toward other solutions such as more labor-intensive services, more simplification in car understructures, and, perhaps most importantly, toward rationalization of the ancient work rules that inhibit much of the output that railroads could create.

The railroads cannot, and will not, allow such conditions to go on. In transportation, the reward for inept investment is painful erosion of assets.

There will be answers to questions we have mentioned. There will be new questions—and there will be old questions no longer worth answering. All this new insight will enable us to apply a measurement of profitability to every specific and general equipment decision in time to come.

Some questions are obvious:

— Do you build or do you buy equipment?

— Does the answer to that question stand true in inflationary times? In deflationary times?

— What happens to that answer when a road doubles in size via increased business or merger?

— Is car rebuilding a profitable activity, or do we rebuild merely because we have the shop capacity and available labor force?

— Is the present obsolescence profile a function of operations? Of traffic? Of metal? Or possibly a function of the financial paper upon which such equipment is purchased?

— Can railroads any more allow the shipper-equipment dialogue to be entirely, or almost entirely in the custody of sales engineers from the car-builders and car leasing companies?

— Is equipment design shifting costs from shippers to carriers without compensating adjustments in rates charged?

— As a corollary, are rates adequately reflecting enough of the capability inherent in the cars we already have and the cars we can expect to have?

As to the last two questions we already see a trend to shipper ownership or lease of cars or certain volume moves with the unit train. We also see the beginning of shipper ownership or lease of controlled volume-incentive traffic with Illinois Central's new Rent-a-Train tariffs. In both cases the freight rates are reduced to reflect the fact that the carrier does not own the equipment.

I expect railroads to do much more of their own analysis. Some answers will appear internally. Suppliers, I imagine, will step up research into the basic questions concerning equipment undercarriages as it becomes evident that a new balance is ahead in this labor-intensive versus capital-intensive "product" that railroads create. Too, I expect that government's role in transportation will increase and provide some seed-money to stimulate progress where private incentives are inadequate. We will, I am sure, benefit a great deal from all such clarification of the financial dimensions inherent in the industry's carfleet. ■

WHO PUT THE MINI INTO SIGN MAKING?

Demp-Nock did.

With its New Mini Sign Kit containing ¾ inch high self-adhering letters and numbers. Durable and easy to apply for countless uses either on the job or in the home. The Mini Sign Kit contains 391 characters and includes a unique system for aligning and spacing. Available in either black, white or yellow.

Another fine product from
...turers of the Let-R-Set.
...uiries invited.

SPENO

You Are on the Right

To Lower Maintenance Costs When You Use

SPENO SERVICES

"BALLAST CLEANING"
"RAIL GRINDING"

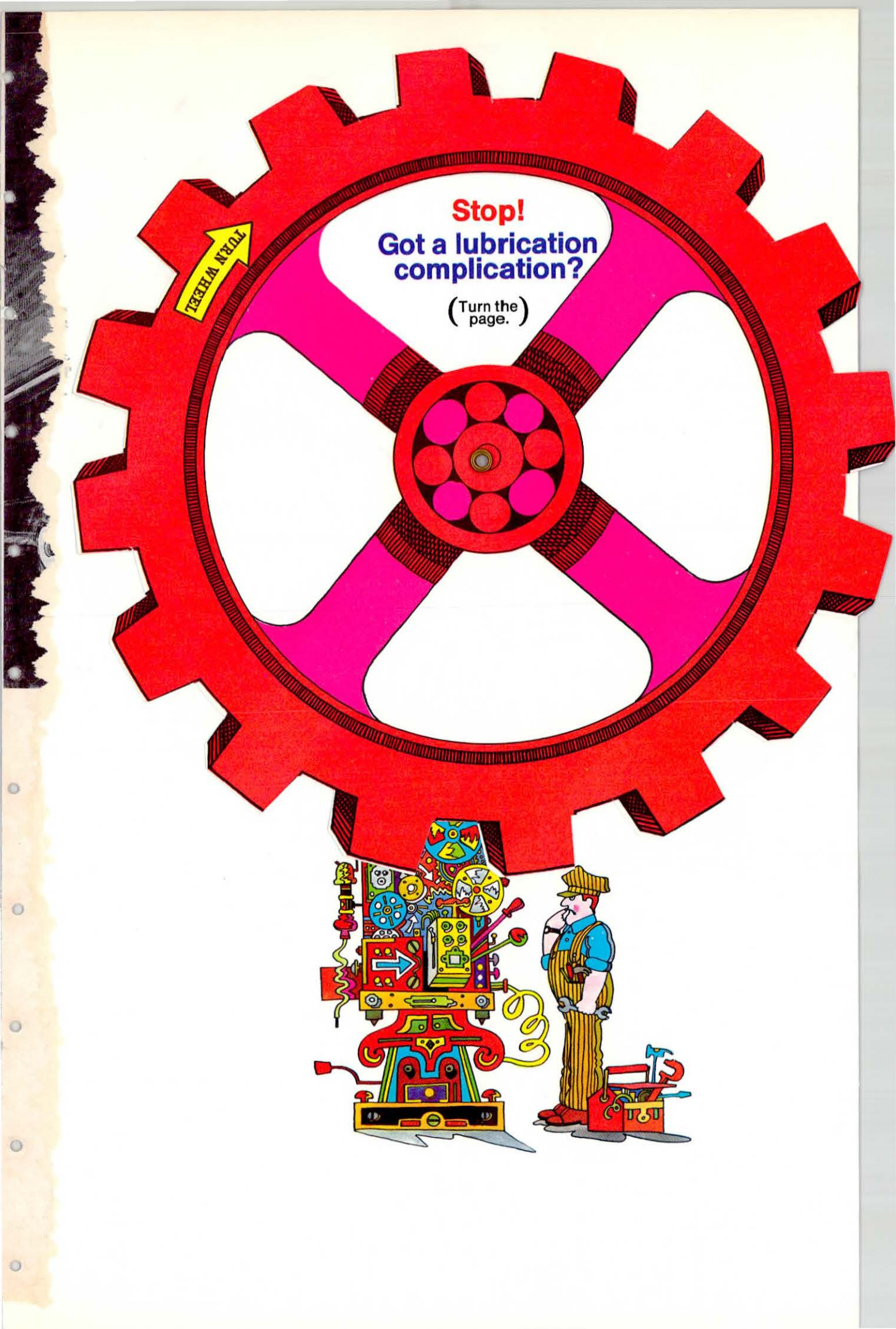
"Just Ask the Railroads That have used us"

FRANK SPENO RAILROAD BALLAST CLEANING Company, Inc.
306 North Cayuga Street, Ithaca, New York
Clark Street, East Syracuse, New York

SPENO INTERNATIONAL, S.A.
22 Parc Chateau Banquet, Geneva, Switzerland
(For Operations Outside the North American Continent)

THE HOLDEN COMPANY, Limited
614 St. James Street, Montreal, P.Q., Canada
(Sales Representative for Canada)

Circle 37 on coupon page 85


TURN WHEEL
Stop!
Got a lubrication complication?
(Turn the page.)

©1968 CITGO—TRADEMARK CITIES SERVICE OIL CO., SUBSIDIARY OF CITIES SERVICE CO.

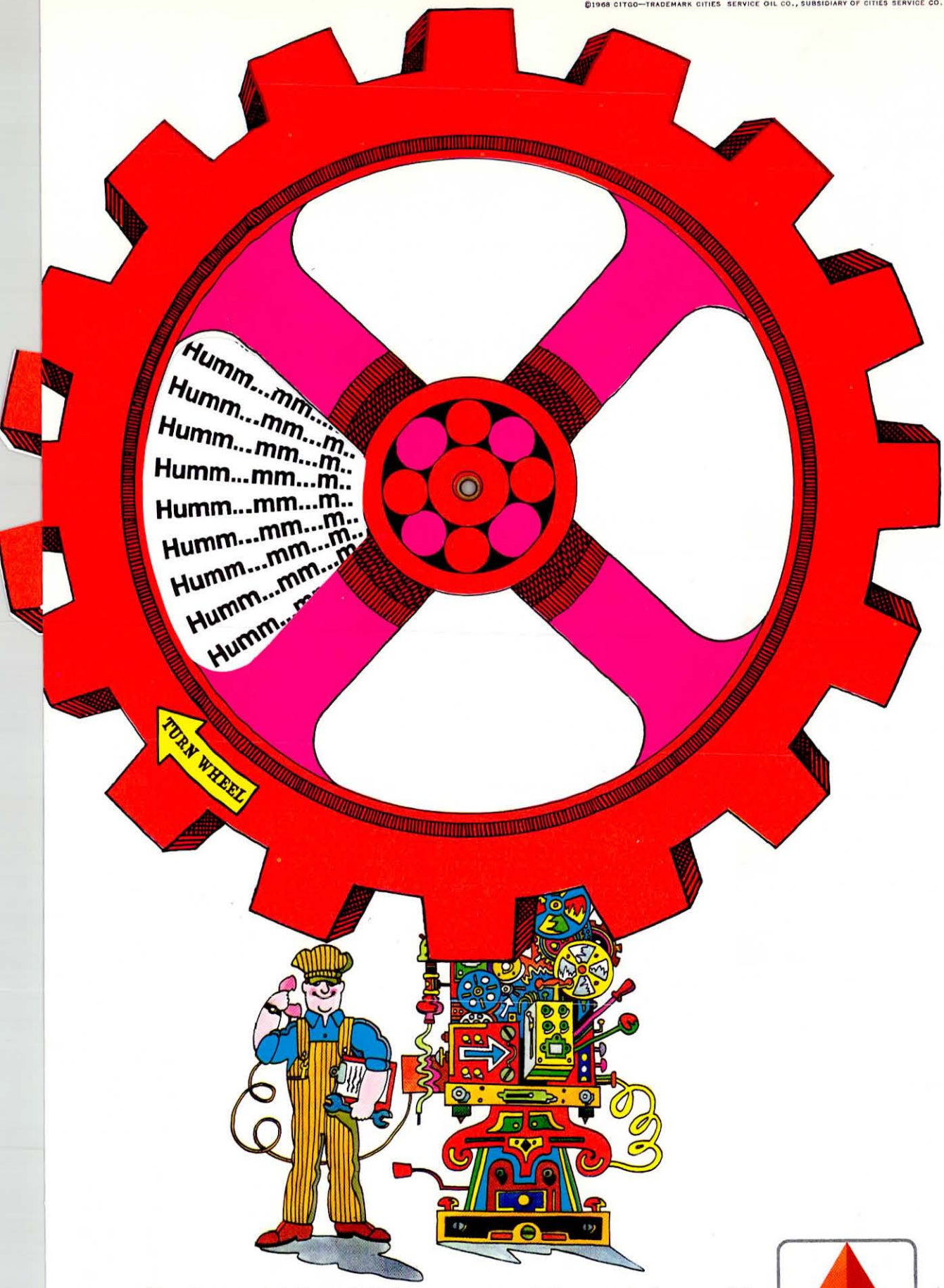
Troublesome lubricants? Maintenance snags? New product research? Whatever your problem, our Technical Service Consultants move with today's speed to bring you vital, economical answers... innovative new ideas.

Call collect or write to CITGO. We have the experts. We have the products. We have more than 50 years of experience. And because we want to get and keep your industrial business, we deliver. Every time.

CITGO

We deliver.

©1968 CITGO—TRADEMARK CITIES SERVICE OIL CO., SUBSIDIARY OF CITIES SERVICE CO.



Troublesome lubricants? Maintenance snags? New product research? Whatever your problem, our Technical Service Consultants move with today's speed to bring you vital, economical answers... innovative new ideas.

Call collect or write to CITGO. We have the experts. We have the products. We have more than 50 years of experience. And because we want to get and keep your industrial business, we deliver. Every time.

CITGO

We deliver.

Squeak!
Rattle!
Clunk!
Gasp!
TURN WHEEL

We deliver:
CITGO Railroad RD-379
Diesel Engine Oil

Here's what it is: A highly dispersant, medium VI diesel engine lubricating oil designed to meet the more severe requirements of the new higher horsepower railroad diesel locomotives. CITGO Railroad RD-379 is formulated with high quality base stocks and an ashless detergent-dispersant which impart superior properties and performance capabilities to the finished oil.

Here's what makes it outstanding: Superior oxidation stability and anti-wear protection.
Good silver lubricity.
Exceptional anti-rust properties, provided by a special component in the additive package.
High detergency-dispersancy to prevent build-up of engine deposits. Breakdown products from the combustion area and other contaminants are held in extremely fine dispersion in the oil. This assures a cleaner engine over greater service intervals.
More extended filter life. High dispersancy permits the oil to flow readily through oil filter elements with a minimum of filter plugging. This feature is of particular importance on engines equipped with by-pass valves where particles in the unfiltered oil could otherwise settle out and cause abrasive damage to bearings.

Here's where you use it: CITGO Railroad RD-379 meets the specification requirements of the leading engine builders. It is one of the most widely used high dispersant diesel lube oils giving superior lubrication performance in all makes of railroad diesel locomotives under all operating conditions.

Here's something else to note: CITGO Railroad R-104S, a soap base traction motor gear compound designed to give excellent gear tooth protection under all ambient temperatures and operating pressures.

Here's where you call: Call CITGO for specifications and technical service . . . plus an outstanding list of products like these, researched and designed specifically for your industry.

National Accounts Department:
P.O. Box 300, Tulsa, Oklahoma 74102
(918) LU 2-1531
P.O. Box 1264, Englewood Cliffs, New Jersey 07632
(201) 567-7300
1776 Peachtree Road, N.W., Atlanta, Georgia 30302
(404) 873-1831
Towson Plaza, 760 Fairmount Ave., Towson, Maryland 21204
(301) 825-8800
10 Forbes Road, Braintree, Massachusetts 02184
(617) 848-1100
1 Salt Creek Lane, Hinsdale, Illinois 60521
(312) 325-4400

CITGO. A nice place to call. Because...

We deliver!

Circle 38 on coupon page 85

Theodore E. Desch
Rock Island

Norman C. Melvin
WM

Zoltan Cseri
Trans.Ry.Research

Harold W. Wiss
WABCO

PEOPLE IN THE NEWS

BOSTON & MAINE.—P. J. Harahan appointed district sales manager, Albany, N.Y., succeeding **A. M. Shepherd,** named supervisor sales and service, Boston. **G. E. Newhall** appointed sales representative, Portland, Me. **E. J. Stasio,** sales representative, New York, and **C. J. Reagan,** sales representative, Manchester N.H., appointed district sales managers at the same locations.

BURLINGTON.—Franklin P. Martin, Jr., assistant district master mechanic, Chicago, transferred to Galesburg, Ill. **Henry Blitz,** electrical engineer of equipment, Chicago, succeeds Mr. Martin, and in turn is succeeded by **Richard J. Morris,** general foreman, Clyde, Ill. **Harold M. Ford,** air brake engineer and general road foreman, becomes master mechanic, **Denver,** to replace **B. F. Meligan,** retired. **John W. Elftman,** office manager of the mechanical department, Chicago, named assistant to the chief mechanical officer there.

CHICAGO & NORTH WESTERN.—A. E. Myles, director of labor relations, named assistant vice president-labor relations. **H. R. Beisel,** manager-labor relations, appointed director of labor relations (operating), and **W. J. Fremon,** assistant director of labor relations, named director of labor relations (non-operating). **D. K. Lawson,** assistant director of labor relations, and **J. D. Crawford,** assistant manager of labor relations, become assistants to vice-president-labor relations. **O. J. Gartrell,** assistant manager of labor relations, named manager of labor relations (operating), and **R. F. Kiley,** assistant manager of labor relations, named manager of labor relations (non-operating). **Murray Humphrey** named assistant manager of labor relations (operating), and **R. J. Corrigan,** assistant manager of labor relations (non-operating). Mr. Humphrey was formerly labor relations officer, and Mr. Corrigan was staff officer. **J. T. Schergen** and **E. O. Krause,** staff officers, named labor relations officers.

J. C. McDaniel, assistant superintendent, Missouri division, Oelwein, Iowa, named trainmaster, Iowa division, Council Bluffs, Iowa. **J. L. Larson** succeeds Mr. McDaniel. **R. E. Schwab** appointed assistant superintendent car service, Chicago.

DELAWARE & HUDSON.—N. H. Williams, bridge and building master, Albany, N.Y., retired Sept. 1, after 42 years of service. **A. W. Cruikshank,** bridge and building supervisor Colonie, N.Y., retired July 31, after over 46 years of service.

ELGIN, JOLIET & EASTERN.—Michael M. Firetto named general storekeeper, Joliet, Ill., to succeed **E. K. Schrader,** who retired Aug. 31 after more than 48 years of service. **E. M. Adams** appointed assistant to general storekeeper, Joliet.

ILLINOIS CENTRAL.—Frank E. Rizzuto appointed director of passenger sales, Chicago, to succeed **Herman J. Biesterfeldt,** who retires Sept. 30.

ILLINOIS TERMINAL.—E. B. Wilson, executive vice president, St. Louis, Mo., elected president, succeeding **E. L. Keister,** who retired Aug. 31, after more than 43 years of railroad service.

LOUISVILLE & NASHVILLE.—John E. Nall named general manager freight sales, administration, Louisville.

H. G. Breetz, general solicitor, Louisville, retired recently after more than 46 years of service.

MISSOURI PACIFIC-TEXAS & PACIFIC.—J. M. Toler named assistant vice president-transportation, St. Louis.

M. F. Hengel, assistant mechanical engineer, St. Louis, appointed mechanical engineer there, succeeding **E. C. Meinholtz,** who retired recently after 41 years' service. **T. C. Chastain** replaces M. Hengel.

ROCK ISLAND.—Theodore E. Desch, general counsel, elected vice president and general counsel.

SEABOARD COAST LINE.—James B. Gregory, manager of industrial development, named general manager industrial development.

UNION PACIFIC.—Robert H. Uhrich, construction engineer, named district engineer, Eastern District, with headquarters remaining at Omaha.

William R. Davis, assistant to the general superintendent of transportation, Omaha, appointed assistant general superintendent of transportation there. **Carroll A. Green,** general station supervisor, Omaha, becomes assistant to the general superintendent of transportation at that point. **Robert D. Wright,** trainmaster, Pocatello, Ida., named director classification control, Omaha.

WESTERN MARYLAND.—Norman C. Melvin, general solicitor, Baltimore, Md., named vice president and general counsel, effective Oct. 1, succeeding **William C. Purnell,** retiring after 37 years with the WM.

SUPPLY TRADE

Zoltan Cseri has been named president of a newly established company, **Transcontinental Railway Research Co.** at Winnetka, Ill. The company is introducing and engineering new products for the railroad industry, especially in the field of freight car components.

Harold W. Wiss has been appointed to the newly created position of vice president of commercial relations, **Westinghouse Air Brake Division, WABCO,** with headquarters in Chicago. Mr. Wiss' successor as manager-Western District, Chicago, is **Robert A. Mitchell,** manager-Central District, Pittsburgh.

Matisa Material Industriel S.A., of Crissier, Switzerland, has acquired **Amsler & Co.** of Schaffhouse, which manufactures vehicles for checking and measuring railway tracks.

Glenn G. Young has been appointed head of a newly established firm, **Canadian Systems/TRW Ltd.,** Toronto, Ont., Canada. The firm plans to engage chiefly in systems engineering and the application of aerospace technology to urban, medical and transportation projects. Mr. Young was formerly a senior executive with TRW Systems Group, Redondo Beach, Calif.

D. H. Larmee, assistant vice president, taxes, **Pullman Incorporated,** has been appointed vice president, taxes and financial administration.

Edwin C. Hoelzel, vice president—manufacturing and a director, **Youngstown Steel Door Co.,** retired Aug. 31, after a half century of service.

Willard C. Macfarland has been appointed manager of sales, **Farrel Corp.,** Rochester, N.Y. The plant specializes in the design and manufacture of railroad shop equipment, as well as other machinery. Mr. Macfarland was formerly manager, Harmonic Drive Division, United Shoe Machinery Corp., Beverly, Mass.

OBITUARY

Charles W. Lindstrom, 51, executive vice president, **Enterprise Railway Equipment Co.,** died Sept. 7 in St. James Hospital, Chicago Heights, Ill.

John Sutka, 58, superintendent of the car department, **Belt Railway of Chicago,** died Sept. 9 in Little Company of Mary Hospital, Evergreen Park, Ill.

ACI label deadline is getting closer

For North American railroads, 1969 may go down in history as "the year of the label." For sure, 1968 won't gain that distinction.

The labels, of course, are the retroflective red-white-blue-black Automatic Car Identification (ACI) labels which must be applied to all 1.8 million interchange freight cars, as well as to other members of the railroads' rolling stock family, by January 1, 1970, just 15½ months hence.

As T. M. Goodfellow, president of the Association of American Railroads, stressed in a letter last month to chief executives of the association's member roads, all cars in interchange service must have the ACI labels by the first day of 1970 because "the industry is committed" to having the system in operation by that date.

The system won't function as planned without labels for the ACI wayside scanners to read. If today happened to be deadline date for the system to be in full operation, nine chances out of ten the probing eyes of the scanners would be reading nothing but their own reflections, not labels.

One midwestern railroad officer estimated that only about 10% of the entire fleet has been labeled thus far. Another, whose railroad has designated over two dozen repair sites for application of the labels, expects about one-third of the road's fleet to be completed by the end of this year. Several others, with fewer locations equipped to apply labels, aren't quite that optimistic. Their estimates are about one-fourth, one-fifth, perhaps less if the supply line for the modules doesn't improve.

Although the ACI system was approved a year ago, and the AAR Research Center issued a detailed instruction manual on label application and location as long ago as last November, actual labeling activity has been slow. One of the big deterrents has been the shortage of the label modules. "Some of our shops have been hampered by a shortage of one specific module, so we've missed many opportunities to label hundreds of cars," explained one mechanical department officer.

To permit roads to establish their own labeling programs and thereby maintain control of expenditures within existing budgets, the AAR Mechanical Division earlier this year circulated a list of all cars which the owners did not want labeled in shops other than their own. These exemptions, considered temporary from the beginning, go by the board at the end of this year.

On January 1, 1969, there will be an open season on labeling of foreign cars, and then the pace of the operation should quicken considerably.

The charges for labeling foreign cars, as outlined in Interchange Rule 101, are:

—$9.30 per car when applied without plates or brackets;

—$13.60 per car, with plates and brackets;

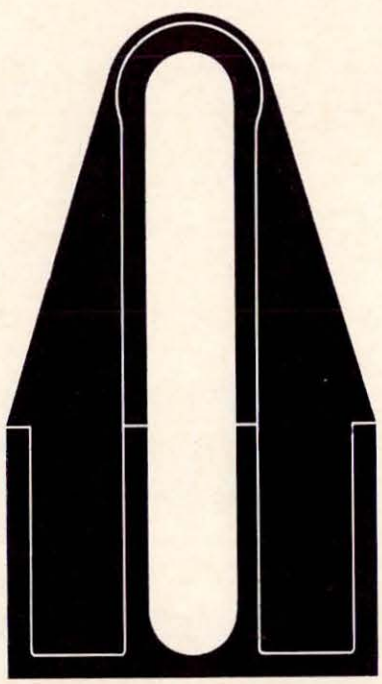
—$.36, application of an individual replacement module.

But prices may rise

Some railroad men feel that these prices are tight and that adjustments may have to be made, perhaps periodically, as the program progresses. Since labor costs, which account for a large portion of the total application charges, aren't likely to decline in the future, the adjustments would undoubtedly be made upwards.

The ACI instruction manual prepared by the AAR Research Center has undergone only minor changes since being issued last year. Cabtype locomotives brought about one change which has resulted in the need for larger modules to form the labels for this particular style of equipment. These new modules, ⅛ in. higher and 1 in. wider than the standard 1 in. by 6 in. labels, are called extended range modules. The added size is needed because the modules are applied to the locomotive hoods which are beyond the primary range of scan.

There are many persons within and without the railroad industry who scoff at any suggestion that the total labeling program will be completed before the January 1, 1970 deadline. Just as the last 20 yards of a football field are the toughest, it might be the last several thousand cars, those which will have to be chased down and labeled, which will be the hardest to cover. Meanwhile, the railroads and private car owners are going to have to beef up the first string and try to get the ball across the 50-yard line early next year if ACI is to score by Jan. 1, 1970. ■



Call PITTSBURGH for Forged Freight Car Parts and Assemblies

Write for our latest Railroad Car Forgings Catalog
See 1966 Car & Locomotive Cyclopedia, Sec. 4, p. 341

AREA 412:264-4000

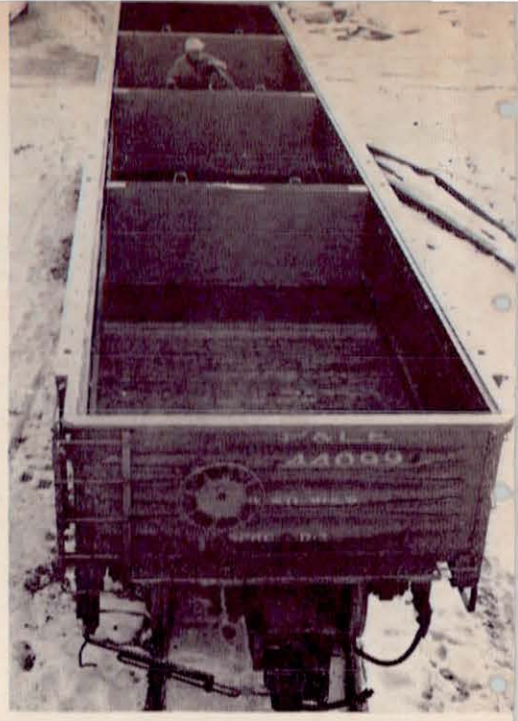
Engineered to your individual requirements and to AAR standards

Pittsburgh Forgings Co.
Railway Forgings Department
OFFICES: 407 THORNE STREET, CORAOPOLIS, PA. 15108
PLANTS: CORAOPOLIS, PA., and JACKSON, MICH.

Circle 58 on coupon page 85

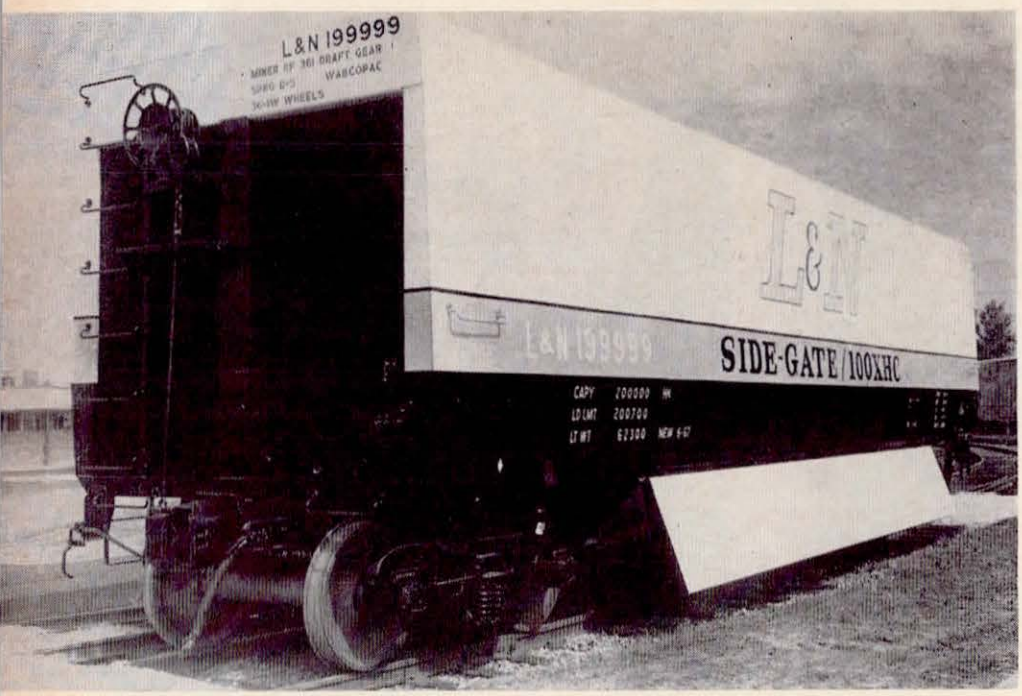
New products for mechanical side of railroads

Many ingenious labor-saving devices will be displayed this week during Mechanical Division's Chicago sessions.



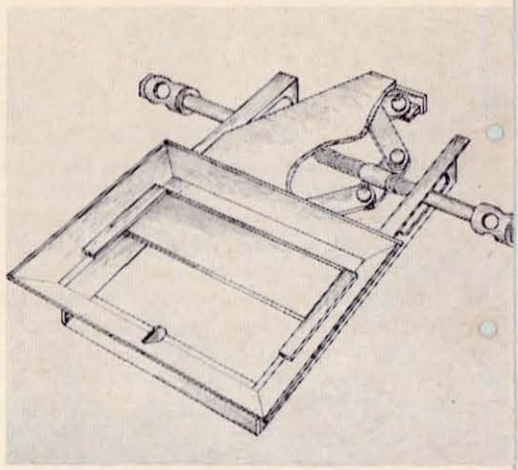
New gondola bulkhead design for easy one-man operation

A DFB bulkhead designed to restrain 50,000 pounds of lading in a cushioned gondola car at 12 mph contains one self-locking handle which automatically controls all four corner pins. The extra large rollers, it is said, make it easy for one man to roll and position. The unit has been completely field tested. *Evans Products Co.* (*RA-2*)



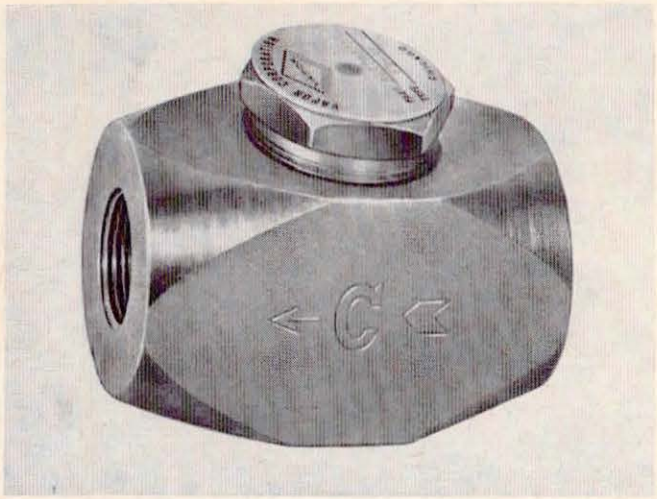
Easy-open door mechanism for a hopper car

A simple lever-operated door opening mechanism that requires only the forward motion of the train as an actuating power source for the rapid discharge of cargo features the Side-Gate/100XHC hopper car developed for handling bulk commodities. The car, adapted to unit train coal service, can be produced as an open-top hopper for coal, or with a trough-hatch roof, for dry bulk commodities requiring protection from weather. *Pullman-Standard.* (*RA-1*)



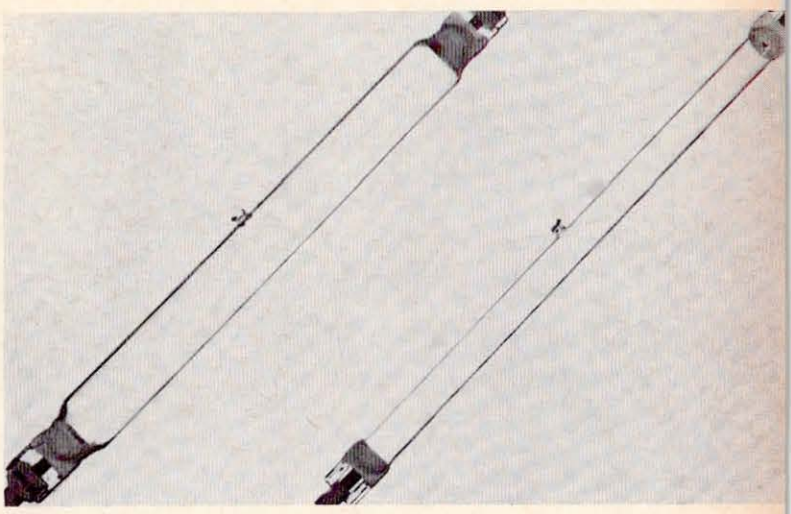
Device for hoppers eliminates need for extra locking units

Featuring a bellows-protected threaded rod with links to obtain maximum output with minimum effort, the Scissorlock covered hopper car discharge outlet allows door movement only when a rotational force is applied to the rod. Designed for bolted or welded application to either side or center discharge covered hoppers, the Scissorlock is of lightweight welded construction. The design eliminates the need for extra locking devices. *Transcontinental Railway Research Co.* (*RA-3*)



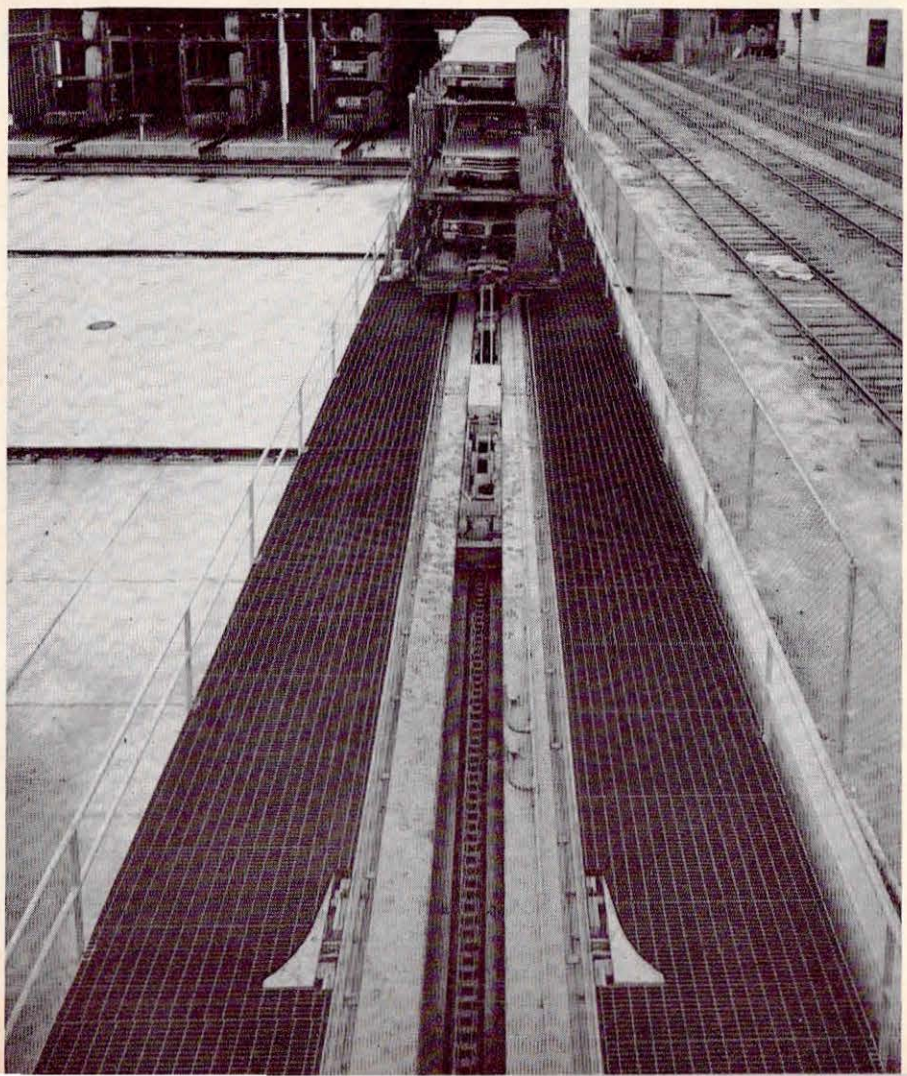
Steam trap features a removable stainless-steel seat

The Thermo-Disc Type Steam Trap incorporates a removable heat-treated, stainless-steel seat which can be replaced without removing the trap from the piping; large discharge ports (¾ in.); and a dual level disc. Its frequency cycling of 10 dumps per minute eliminates water logging and permits checks on the rate of water return in the same way as the earlier bucket types with which it is interchangeable. The overall size of this special unit is 2 x 2½ x 3⅝ in. *Vapor Corp.* (*RA-4*)



Tubular-metal halide lamps can up-grade existing lighting levels

Non-jacketed, tubular-metal halide lamps of 800 and 1500 wattage are said to produce four to five times the light of standard double-ended tungsten-halogen types of similar wattage. With proper ballast equipment and operated according to instructions, the lamps can be installed in modified tubular lamptype floodlights to upgrade lighting levels. Based on a 5-hr burning cycle, lamps have an average rated life of 2000 hr plus. They have recessed single-contact bases, or ozone-free quartz bulbs. *Sylvania Electric.* (*RA-5*)

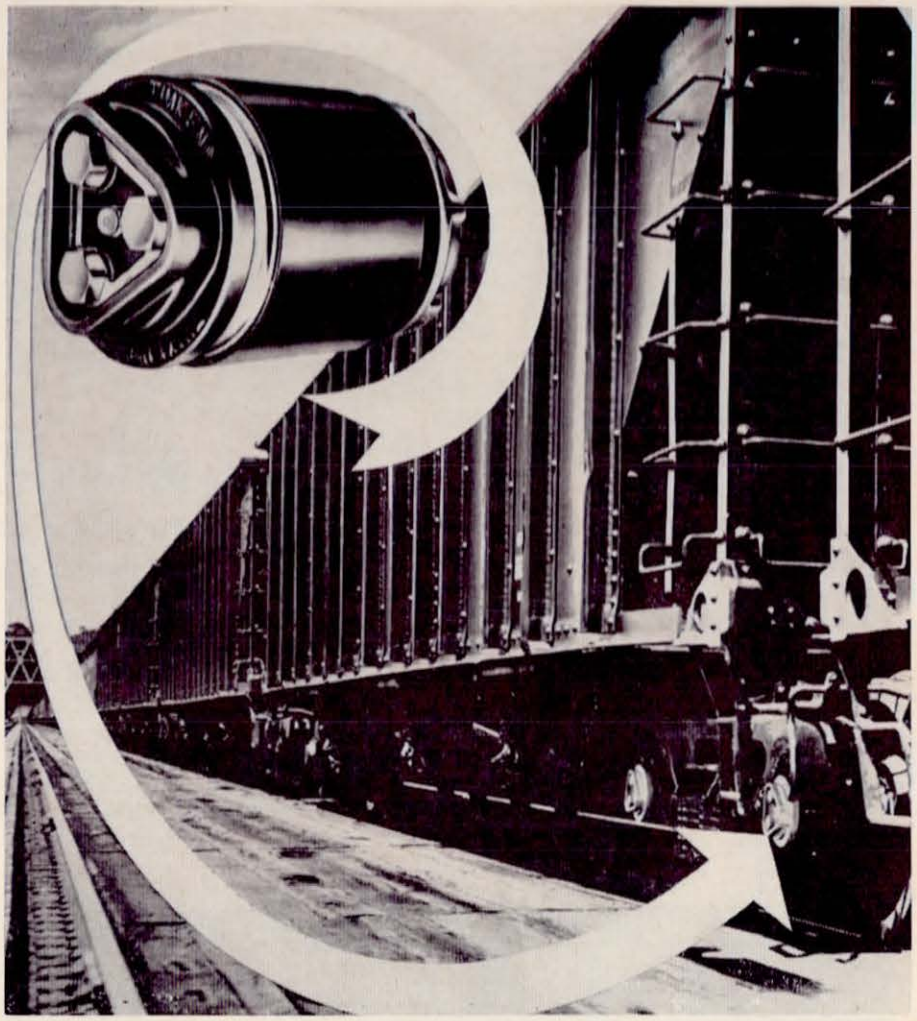


Transfer table expedites auto loading on cars

The Whiting Transfer table spans four spur tracks terminating in a covered loading dock. It permits loading of new cars on a single railway carrier at four individual loading points with subsequent transfer of the loaded rail car to a spur track for make-up into trains. It eliminates the necessity of driving new cars from carrier to carrier, reducing damage. The table is electrically powered, requires only two operators. It traverses laterally, automatically aligns with any spur track. A Whiting Car Robot Car Mover engages an empty rail carrier for transfer to loading dock, and positions it on table. At the desired loading point Robot pushes the rail car from the table into the covered dock and disengages. *Whiting.* (*RA-6*)

For more New Products ►

NEW PRODUCTS



New tapered bearings are easily installed

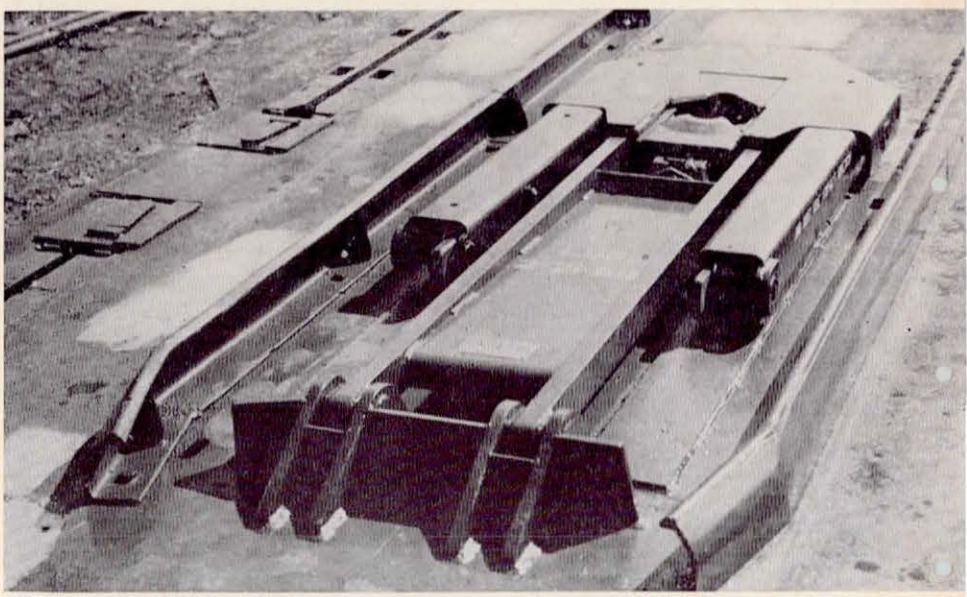
"AP" railroad bearings—pre-assembled, pre-set, pre-lubricated—offer economies in installation, maintenance and replacement. They are applied directly to the axle without exposing seals, lubricant or bearing element to contamination or damage. Application or removal is easy and quick. The tapered geometry provides true rolling motion and practically eliminates the problem of friction. Positive roller alignment assures the uniform load distribution needed for maximum capacity. Case-carburized steel is used in "AP" bearings. It provides a hard resistant outer layer and a tough inner core to withstand sudden shocks and thrust, yielding longer life and reduced maintenance costs. The bearings are available for all AAR standard axle sizes and also in 6½ and 7-in. bores for heavy equipment and diesel locomotives. *Timken Roller Bearing Co.* (*RA-7*)

Car enamels will provide resistance against corrosion

Supremis enamels for rail cars are said to exhibit high initial gloss; depth of appearance; excellent corrosion resistance; and fast dry to stencil or tape. The enamels are available for application over primer and for direct-to-metal application, each in a complete range of colors, in 5-gallon cans and 55-gallon drums. *E. I. du Pont de Nemours & Co.* (*RA-8*)

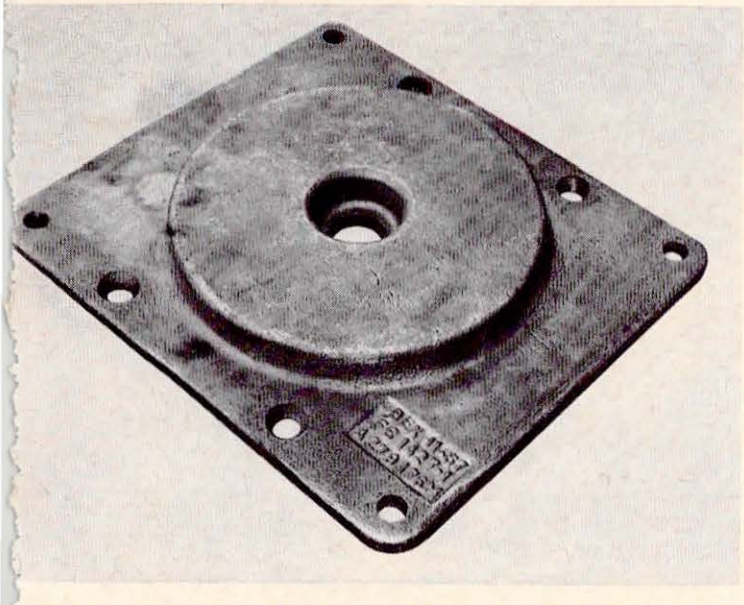
Hydraulic cushioning unit designed for auto-rack cars

The Type AR-F end-of-car hydraulic cushioning unit is said to allow the use of 60-in. couplers in the same pocket space that would formerly accommodate only a 43-in. coupler. The unit is designed for installation in new or existing low-deck auto rack flat cars and carries an identical performance rating to the Type E and F units *Freight-Master*. (*RA-9*)



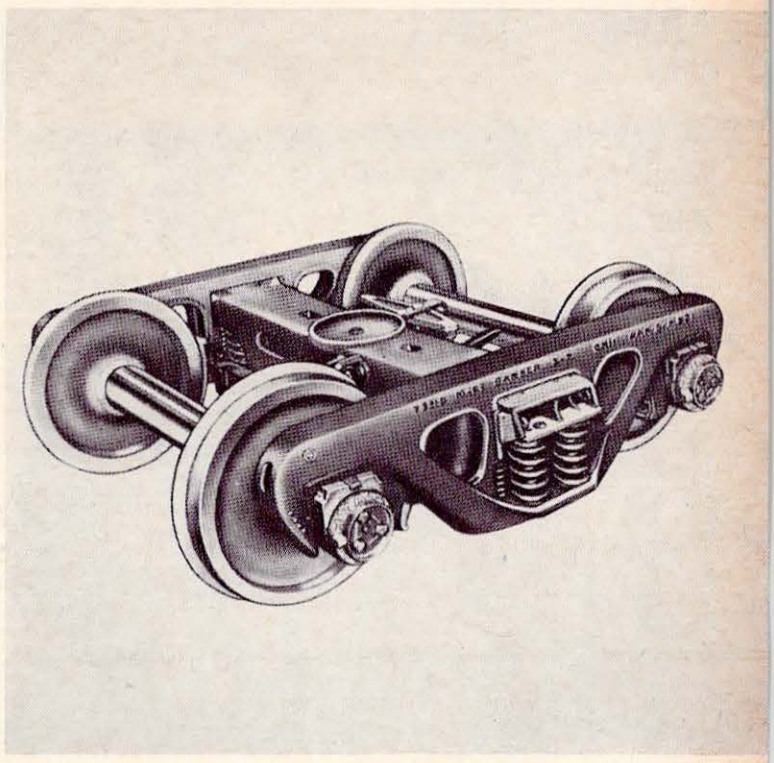
New trailer hitch elminates TOFC riser boards

A low-silhouette trailer hitch, the Model 5, has been developed to eliminate the need for riser boards on piggyback cars. The unit is only 5½ inches high when retracted. The wrench-operated hitch, when raised, has a positive securement device which locks on the trailer kingpin. *ACF Industries*. (*RA-10*)



Manganese steel used in body plates

AAR approval has been given for the installation of 1,000 car sets of cast manganese steel body plates on new or rebuilt freight cars. The plates are available for cars with 6- x 11-in. and 6½ - x 12-in. journals and can be installed on unmachined truck bolsters without wear liners. Because the austenitic manganese steel used has a yield strength 70% greater than carbon steel, a tensile strength 100% greater, and elongation 50% greater, the castings are "not subject to cracks frequently encountered around the bowl with existing center plates." Upon a recent inspection of the first manganese plates installed on 100 Kennecott Copper cars, the plates according to the manufacturer, were found to be in good condition with smooth bearing surfaces and practically no wear after 37 years. *Abex Corp. (RA-11)*



Hi-tensile steel castings for unit trains

The Super Strength Grade C side frame and bolster castings, designed for heavy duty "super train" and unit train operations, are said to offer increased section strength properties as well as the "toughness" of tempered hi-tensile steel. The castings, which are available in all the higher capacities, weigh no more than the standard Grade B steel design. *Scullin Steel Co. (RA-13)*

Nailable freight car flooring is strong, easy to install

The 8-in. width of the sections and their added reinforcement have produced a nailable freight car flooring that is stronger and easier to install. Because the new sections are twice as wide as those formerly produced, their installation represents not only fewer pieces to handle and fewer welds but also achieves a greater overall smoothness. A small hat-shaped member welded upside down to the bottom of each section makes it more resistant to denting. Spacer lugs are wider on the new flooring and section flanges are easily pulled into good contact with stringers and sills, giving a better surface for economical downhand welding in the underframe. Hat sections with outward flanges weld to floor supports and channel members with inward turning flanges welded to spacer lugs forming the grooves into which nails may be driven. Nails pull easily because they curve only once. *Armco Steel. (RA-12)*

RAILWAY AGE
THE TRANSPORTATION WEEKLY

30 Church Street, N.Y., N.Y. 10007 READERS' SERVICE (Att. J. Lindstrom)

PLEASE SEND ADDITIONAL INFORMATION ABOUT PRODUCTS IN ADVERTISEMENTS NUMBERED: 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60

PLEASE SEND INFORMATION ABOUT PRODUCTS NUMBERED: RA-1 RA-2 RA-3 RA-4 RA-5 RA-6 RA-7 RA-8 RA-9 RA-10 RA-11 RA-12 RA-13

NAME ..... TITLE .....

COMPANY .....

ADDRESS .....

CITY ..... STATE ..... ZIP .....

• Inquiries can be processed only if title and company are shown. 9/23/68

Second Quarter and Six Months' Figures of Calendar Year 1968

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Pass.	Total (inc. misc.) 1968	Total (inc. misc.) 1967	Operating Expenses: Maint. Way and Structures: Total 1968	Total 1967	Deprec. and Retirements	Maint. Equipment: Total 1968	Total 1967	Deprec. and Retirements	Traffic	Transportation	Total 1968	Total 1967	Operating ratio 1968	Operating ratio 1967	Net from railway operation	Railways tax accruals	Net Railway operating income 1968	Net Railway operating income 1967
Akron, Canton & Youngstown	3 mos.	171	1,981	—	2,046	1,738	298	307	21	365	370	134	113	708	1,589	1,550	77.7	89.2	457	240	301	176
	6 mos.	171	3,929	—	4,052	3,421	530	515	41	766	699	278	229	1,415	3,157	2,950	77.9	86.2	895	458	620	445
Ann Arbor	3 mos.	293	2,098	—	2,149	2,349	212	221	26	441	385	139	53	1,135	1,906	1,824	88.7	77.7	243	183	−164	171
	6 mos.	293	4,347	—	4,426	4,368	446	428	47	884	799	280	106	2,288	3,853	3,619	87.1	82.8	573	364	−186	80
Atchison, Topeka & Santa Fe	3 mos.	12,867	149,385	6,582	165,638	169,366	28,695	24,210	2,468	33,834	35,297	10,890	4,969	62,948	138,238	137,788	83.5	81.4	27,400	13,929	11,424	15,643
	6 mos.	12,880	298,536	11,634	329,558	329,492	52,246	46,842	4,967	70,462	71,702	21,987	9,628	125,247	273,129	272,596	82.9	82.7	56,429	29,143	23,470	25,434
Baltimore & Ohio	3 mos.	5,748	111,026	1,087	118,220	104,763	15,102	12,998	1,415	16,505	15,906	2,543	2,718	43,015	83,483	78,697	70.6	75.1	34,737	8,521	11,446	5,255
	6 mos.	5,748	206,117	2,138	219,322	206,393	26,500	23,398	2,979	33,430	33,216	5,146	5,499	84,612	162,419	155,901	74.0	75.5	56,903	15,237	11,435	9,420
Bangor & Aroostook	3 mos.	543	3,810	64	3,968	4,018	921	897	67	1,056	1,021	433	83	1,129	3,411	3,345	86.0	83.3	556	295	982	852
	6 mos.	543	7,371	124	7,637	8,128	1,747	1,719	134	2,172	2,225	853	172	2,439	6,998	7,005	91.6	86.2	639	601	1,136	1,433
Bessemer & Lake Erie	3 mos.	201	10,850	—	11,462	9,280	933	1,277	134	1,134	1,173	−845	154	2,386	5,236	4,899	45.7	52.8	6,226	3,879	2,609	2,151
	6 mos.	201	16,621	—	17,528	14,096	1,816	2,090	264	2,323	2,505	−835	312	4,296	9,981	9,352	56.9	66.3	7,547	5,193	3,261	2,653
Boston & Maine	3 mos.	1,529	14,874	1,137	17,391	16,048	2,159	2,102	444	2,625	2,368	629	346	7,557	13,578	12,762	78.1	79.5	3,813	1,247	1,068	530
	6 mos.	1,529	28,191	2,301	33,282	31,952	4,406	4,144	857	5,286	4,621	1,265	689	15,277	27,458	25,442	82.5	79.6	5,825	2,497	18	1,057
CPR Lines in Maine	3 mos.	234	1,615	35	1,707	1,556	247	225	60	226	221	46	49	479	1,124	1,905	65.9	68.1	583	75	231	137
	6 mos.	234	3,440	69	3,610	3,774	574	521	120	534	578	92	98	1,036	2,481	2,469	68.7	65.4	1,129	151	387	516
Central of Georgia	3 mos.	1,729	12,457	196	12,986	11,562	2,719	2,493	128	2,600	2,372	737	313	4,646	11,069	11,115	85.2	96.1	1,917	109	1,029	−518
	6 mos.	1,729	24,276	455	25,349	22,958	5,137	4,786	295	5,252	4,639	1,512	632	9,462	22,067	22,043	87.1	96.0	3,282	507	1,260	−991
Central RR of New Jersey	3 mos.	594	11,055	855	13,627	12,725	1,511	1,382	237	2,194	2,414	425	335	6,148	11,289	11,542	82.8	90.7	2,338	1,145	−684	−1,579
	6 mos.	594	20,452	1,718	25,660	24,693	2,974	2,885	532	4,336	4,710	864	660	12,312	22,487	23,333	87.6	94.5	3,173	2,278	−2,535	−3,862
Central Vermont	3 mos.	382	2,079	2	2,155	2,069	472	492	61	212	336	12	37	866	1,916	2,156	88.9	104.2	239	165	−221	−537
	6 mos.	382	3,930	2	4,102	4,150	937	960	114	532	610	25	71	1,725	3,670	3,907	89.5	94.1	432	339	−483	−613
Chesapeake & Ohio	3 mos.	5,127	97,813	884	103,940	104,068	11,900	11,000	1,529	20,089	18,712	6,431	2,464	40,867	80,777	79,797	77.7	76.7	23,163	10,457	11,934	12,293
	6 mos.	5,127	186,277	1,684	196,808	197,925	22,100	21,100	3,040	39,358	38,365	13,101	5,083	79,259	156,964	156,306	79.8	78.9	39,845	19,572	21,805	22,281
Chicago & Eastern Illinois	3 mos.	862	11,839	20	12,370	10,805	2,219	1,670	144	2,000	1,855	563	426	4,432	9,915	8,687	80.1	80.4	2,456	787	8	224
	6 mos.	862	22,563	126	23,618	20,379	3,717	3,334	262	4,433	3,733	1,129	837	8,739	19,270	17,364	81.6	85.2	4,348	1,618	−474	−598
Chicago & Illinois Midland	3 mos.	121	1,273	—	1,315	1,423	100	166	21	199	225	36	6	338	765	909	58.2	63.9	549	341	202	142
	6 mos.	121	2,465	—	2,551	2,960	219	265	42	406	454	71	13	699	1,583	1,870	62.1	63.2	968	588	331	321
Chicago & North Western	3 mos.	10,166	54,500	5,145	61,875	59,256	9,658	9,819	1,381	10,432	9,704	3,690	2,065	25,804	52,421	49,513	84.7	83.6	9,454	5,127	259	−100
	6 mos.	10,166	106,871	10,156	121,653	116,450	17,895	18,315	2,761	20,997	19,998	7,381	4,118	51,842	103,510	98,307	85.1	84.4	18,143	10,142	822	−2,083
Chicago, Burlington & Quincy	3 mos.	8,536	58,501	4,283	67,874	68,498	9,310	8,416	1,503	12,084	13,008	4,273	2,231	28,140	55,973	56,762	82.5	82.9	11,901	5,755	4,119	3,504
	6 mos.	8,536	116,717	7,709	134,819	137,262	17,998	16,641	2,931	24,843	25,887	8,581	4,523	55,753	111,425	113,199	82.7	82.5	23,393	11,299	7,805	7,651
Chicago Great Western	3 mos.	1,411	6,802	—	7,079	6,963	1,152	1,081	132	1,358	1,339	408	376	2,735	5,999	5,827	84.7	83.7	1,080	651	−296	−533
	6 mos.	1,411	13,874	1	14,414	14,493	1,980	2,046	250	2,684	2,670	814	757	5,434	11,565	11,494	80.2	79.3	2,849	1,277	45	−270
Chic., Milw., St. Paul & Pacific	3 mos.	10,511	59,091	2,584	67,056	62,559	9,178	8,745	1,344	10,713	9,639	3,317	1,903	27,059	53,108	50,936	79.2	81.4	13,948	5,799	4,052	2,100
	6 mos.	10,511	116,265	4,930	131,553	124,511	16,915	16,126	2,666	21,057	19,633	6,678	3,699	55,213	105,404	101,083	80.1	81.2	26,149	11,420	6,264	4,129
Chicago, Rock Island & Pacific	3 mos.	7,277	57,255	1,375	61,128	56,929	8,920	8,797	777	9,786	10,105	2,144	1,620	24,900	48,530	50,014	79.4	87.9	12,599	4,764	−629	−5,537
	6 mos.	7,278	111,054	3,093	119,703	114,322	16,786	16,547	1,974	20,020	20,330	4,346	3,221	50,218	96,769	97,622	80.8	85.4	22,934	9,375	−2,158	−6,449
Clinchfield	3 mos.	306	7,454	—	7,502	8,178	867	817	72	1,280	1,182	600	242	2,038	4,673	4,759	62.3	58.2	2,829	716	2,327	2,789
	6 mos.	306	15,016	—	15,108	15,617	1,655	1,623	140	2,442	2,369	1,197	484	4,225	9,295	9,213	61.5	59.0	5,812	1,430	4,666	5,146
Colorado & Southern	3 mos.	708	3,982	−4	4,072	3,929	421	465	39	657	761	314	52	1,237	2,644	3,260	64.9	83.0	1,429	500	796	301
	6 mos.	708	7,661	11	7,832	7,643	794	984	87	1,378	1,519	634	118	2,455	5,248	6,652	67.0	87.0	2,584	899	1,542	425
Ft. Worth & Denver	3 mos.	1,280	4,256	1	4,446	4,504	618	664	100	600	973	143	187	1,883	3,644	4,530	82.0	100.6	802	461	−135	−844
	6 mos.	1,280	9,699	−21	10,050	9,509	1,239	1,345	181	1,193	1,753	288	380	3,811	7,330	8,915	72.9	93.7	2,720	794	776	−1,132
Delaware & Hudson	3 mos.	734	10,404	163	10,805	10,706	1,717	1,243	245	2,290	2,228	605	355	4,080	9,145	8,175	84.6	76.4	1,660	1,321	501	1,207
	6 mos.	734	20,293	305	21,081	21,368	2,918	2,364	431	4,471	4,788	1,198	699	7,857	17,397	16,766	82.5	78.5	3,683	2,596	1,362	1,990
Denver & Rio Grande Western	3 mos.	2,153	22,288	463	23,008	22,394	2,816	2,827	491	3,477	3,508	1,318	818	7,470	15,892	15,880	69.1	70.1	7,116	3,444	3,586	3,334
	6 mos.	2,153	43,520	826	44,855	44,154	5,014	5,063	808	7,101	7,087	2,615	1,640	14,808	31,260	31,204	69.7	70.7	13,595	6,443	6,950	6,656
Detroit & Toledo Shore Line	3 mos.	50	1,632	—	1,748	1,540	130	143	13	248	234	111	66	618	1,190	1,172	68.1	76.1	558	165	97	123
	6 mos.	50	3,269	—	3,449	3,395	281	289	26	509	489	223	130	1,224	2,370	2,386	68.7	70.3	1,079	323	234	316
Detroit, Toledo & Ironton	3 mos.	467	6,924	—	7,215	6,680	592	599	82	1,285	1,508	667	242	2,449	4,940	4,931	68.5	73.8	2,275	551	1,082	902
	6 mos.	467	14,399	—	15,012	13,225	1,187	1,097	166	2,838	2,842	1,335	461	5,126	10,328	9,554	68.8	72.2	4,684	1,089	2,285	1,851
Duluth, Missabe & Iron Range	3 mos.	513	10,720	—	11,690	11,013	1,846	1,566	298	1,319	1,338	547	49	2,838	6,850	6,310	58.6	57.3	4,840	2,933	2,068	2,093
	6 mos.	512	13,486	—	14,587	12,946	2,973	2,620	565	2,636	2,731	1,086	101	4,451	11,748	11,041	80.5	85.3	2,840	2,282	1,098	623

Second Quarter and Six Months' Figures of Calendar Year 1968

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Pass.	Total (inc. misc.) 1968	Total (inc. misc.) 1967	Operating Expenses: Maint. Way and Structures: Total 1968	Total 1967	Deprec. and Retirements	Maint. Equipment: Total 1968	Total 1967	Deprec. and Retirements	Traffic	Transportation	Total 1968	Total 1967	Operating ratio 1968	Operating ratio 1967	Net from railway operation	Railways tax accruals	Net Railway operating income 1968	Net Railway operating income 1967
Duluth, Winnipeg & Pacific	3 mos.	174	2,172	—	2,208	1,989	281	318	16	189	126	2	41	769	1,339	1,257	60.6	63.2	869	315	193	102
	6 mos.	174	4,845	—	4,906	4,089	503	550	32	406	269	5	82	1,554	2,662	2,439	54.3	59.7	2,244	737	729	507
Elgin, Joliet & Eastern	3 mos	205	10,428	—	15,375	12,014	1,549	1,436	100	2,452	2,174	467	178	5,591	11,127	9,381	72.4	78.1	4,249	2,406	789	505
	6 mos.	205	20,429	—	29,862	24,405	2,674	2,966	203	5,001	4,273	879	336	10,888	21,605	18,941	72.3	77.6	8,257	4,496	1,776	1,143
Erie Lackawanna	3 mos.	2,905	54,181	2,631	61,553	56,172	7,274	6,851	1,185	10,211	10,030	2,480	1,331	26,845	48,605	47,385	79.0	84.4	12,948	4,719	2,736	−157
	6 mos.	2,905	104,584	5,252	119,487	110,301	13,460	12,510	2,293	21,428	19,868	4,937	2,604	55,563	98,920	92,682	82.8	84.0	20,567	9,787	−348	99
Florida East Coast	3 mos.	571	6,211	11	6,340	5,986	1,627	1,175	299	809	949	205	171	1,662	4,701	4,656	74.1	77.8	1,639	846	86	81
	6 mos.	571	12,756	20	13,023	12,667	3,073	2,516	467	2,100	1,965	545	334	3,336	9,658	9,659	74.2	76.3	3,365	1,694	170	90
Georgia Railroad	3 mos.	331	2,449	12	2,631	2,816	356	344	45	427	440	105	146	953	2,038	2,123	77.5	75.4	593	152	246	378
	6 mos.	331	4,526	30	4,898	5,370	716	671	89	844	869	208	290	1,862	4,019	4,144	82.0	77.2	879	295	224	686
Grand Trunk Western	3 mos.	946	16,959	496	18,518	17,803	2,004	2,131	292	2,408	2,502	193	404	8,421	14,304	14,008	77.2	78.7	4,214	1,624	−1,032	−1,491
	6 mos.	946	32,739	926	35,840	33,358	3,758	4,174	470	4,944	5,206	386	779	16,679	28,246	27,893	78.8	83.6	7,594	3,233	−2,211	−4,422
Great Northern	3 mos.	8,276	58,177	2,336	64,700	63,773	10,335	11,481	1,540	11,326	11,480	3,479	1,974	25,540	53,448	54,820	82.6	86.0	11,252	6,528	4,483	2,208
	6 mos.	8,279	114,151	3,958	125,826	124,579	18,742	20,187	2,636	22,244	22,338	6,990	3,864	51,032	104,507	104,622	83.1	84.0	21,319	12,845	7,648	5,376
Gulf, Mobile & Ohio	3 mos.	2,734	22,659	510	24,485	23,087	3,109	2,885	282	4,437	4,616	1,339	865	8,089	17,543	16,725	71.6	72.4	6,943	2,198	2,902	2,830
	6 mos.	2,734	44,666	946	48,196	46,392	6,064	5,722	537	8,971	9,167	2,664	1,726	16,134	34,949	33,823	72.5	72.9	13,247	4,107	5,581	5,292
Illinois Central	3 mos.	6,713	67,760	5,690	77,734	74,815	9,818	9,377	1,360	13,918	12,968	4,036	2,155	29,176	60,155	58,118	77.4	77.7	17,578	7,416	5,984	4,874
	6 mos.	6,714	132,440	10,994	151,907	147,980	19,691	18,998	2,714	27,380	26,083	7,927	4,335	59,351	120,947	116,645	79.6	78.8	30,960	14,445	8,200	8,727
Illinois Terminal	3 mos.	340	2,125	—	2,390	2,504	309	272	11	491	412	117	76	927	2,037	1,962	85.3	78.4	352	203	−189	72
	6 mos.	340	4,278	—	4,775	4,886	627	522	22	948	818	230	208	1,917	4,102	3,871	85.9	79.2	673	415	−390	101
Kansas City Southern	3 mos.	894	10,588	146	11,579	11,364	1,275	1,048	173	1,921	2,059	767	365	4,167	8,242	8,099	71.2	71.3	3,337	859	1,339	1,588
	6 mos.	894	21,750	345	23,979	23,093	2,573	1,982	344	4,075	3,953	1,540	733	8,405	16,799	15,805	70.1	68.4	7,180	1,859	3,169	3,315
Lake Superior & Ishpeming	3 mos.	103	2,231	—	2,712	2,317	308	275	77	369	366	191	9	543	1,334	1,307	49.2	56.4	1,379	292	1,136	851
	6 mos.	103	2,398	—	2,944	2,540	566	555	153	721	733	382	18	831	2,345	2,309	79.6	90.9	599	451	237	−47
Lehigh Valley	3 mos.	956	11,430	—	11,791	11,261	1,419	1,390	257	1,771	1,594	326	408	5,799	10,133	9,797	85.9	87.0	1,658	987	−939	−733
	6 mos.	956	22,367	—	23,134	22,540	2,864	2,846	517	3,369	3,183	674	812	11,815	20,346	19,881	88.0	88.2	2,788	1,995	−2,427	−1,707
Long Island	3 mos.	322	2,463	19,231	22,580	20,300	2,249	3,045	262	4,958	4,249	613	157	12,161	20,863	19,596	92.4	96.5	1,717	1,369	−653	−1,544
	6 mos.	322	4,712	37,026	43,430	39,948	4,868	6,441	543	10,073	8,619	1,227	358	24,343	42,186	39,686	97.1	99.3	1,245	2,786	−3,448	−4,154
Louisiana & Arkansas	3 mos.	746	7,587	110	8,032	7,160	1,179	783	65	1,009	1,127	423	298	2,503	5,252	5,021	65.4	70.1	2,780	1,003	962	505
	6 mos.	746	14,372	231	15,330	13,865	1,943	1,456	140	2,129	2,205	847	600	5,074	10,362	9,860	67.6	71.1	4,969	1,805	1,786	1,172
Louisville & Nashville	3 mos.	5,570	73,874	679	77,100	73,277	10,789	9,983	1,141	15,672	15,164	6,872	1,891	27,816	60,329	57,980	78.2	79.1	16,771	6,159	9,326	8,622
	6 mos.	5,571	143,901	1,373	150,593	144,978	20,385	18,979	2,293	31,475	30,122	13,657	3,718	56,447	120,288	115,240	79.9	79.5	30,305	11,510	15,935	16,405
Maine Central	3 mos.	921	5,936	3	6,074	6,085	993	1,089	88	1,235	1,223	295	117	2,124	4,857	4,864	80.0	79.9	1,217	432	500	540
	6 mos.	921	11,985	4	12,289	12,461	2,068	2,256	174	2,466	2,458	590	230	4,341	9,869	10,001	80.3	80.3	2,420	866	943	1,056
Missouri-Illinois	3 mos.	444	1,788	—	1,793	1,544	279	141	12	527	520	338	31	370	1,275	1,140	71.1	73.8	518	303	1,105	825
	6 mos.	444	3,512	—	3,559	3,145	395	258	25	1,102	997	673	67	730	2,435	2,226	68.4	70.8	1,124	577	2,234	1,737
Missouri-Kansas-Texas Lines	3 mos.	2,789	16,028	—	16,572	14,819	2,301	2,678	251	2,078	2,104	541	859	5,932	11,955	11,801	72.1	79.6	4,617	1,264	234	−417
	6 mos	2,789	32,053	—	33,094	28,409	4,517	5,001	533	4,024	4,141	1,029	1,592	11,811	23,523	22,923	71.1	80.7	9,571	2,500	953	−1,009
Missouri Pacific	3 mos.	9,042	76,961	782	82,949	82,270	12,551	10,969	1,342	13,122	13,671	3,469	1,976	29,492	60,647	58,743	73.1	71.4	22,302	6,905	7,860	9,327
	6 mos.	9,042	149,148	1,441	160,990	160,614	23,646	21,934	2,503	25,945	26,948	6,966	3,917	56,646	118,046	115,860	73.3	72.1	42,945	13,244	14,962	17,587
Monon	3 mos.	540	4,929	—	5,145	4,718	689	575	57	837	772	220	241	1,920	4,048	3,763	78.7	79.7	1,097	387	297	247
	6 mos.	540	9,826	—	10,253	9,581	1,251	1,117	122	1,636	1,581	439	468	3,829	7,905	7,617	77.1	79.5	2,347	785	710	560
Monongahela	3 mos.	167	1,473	—	1,483	1,828	475	215	36	186	163	28	3	515	1,223	869	82.5	47.6	260	Cr 24	−87	482
	6 mos.	167	3,127	—	3,150	3,478	716	410	70	344	310	55	6	984	2,124	1,812	67.4	52.1	1,026	159	107	713
New York Central	3 mos.	See Penn Central																				
	6 mos.	See Penn Central																				
Pittsburgh & Lake Erie	3 mos.	209	8,947	15	9,529	8,112	888	938	189	3,364	2,399	1,272	233	3,399	8,508	7,111	89.3	87.7	1,021	2,246	3,338	2,849
	6 mos.	209	16,743	33	17,970	15,146	1,865	1,777	355	5,853	5,525	2,519	487	6,819	15,304	14,926	90.7	98.5	1,665	4,198	6,134	5,031

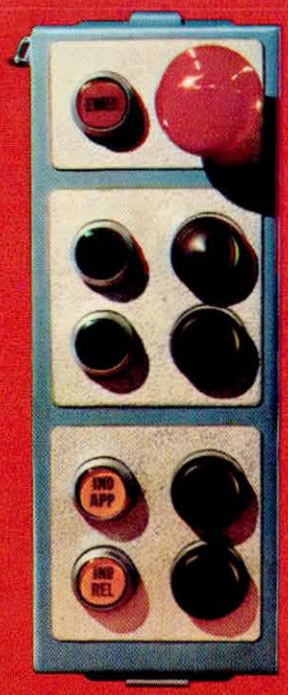
(Continued on page 90)

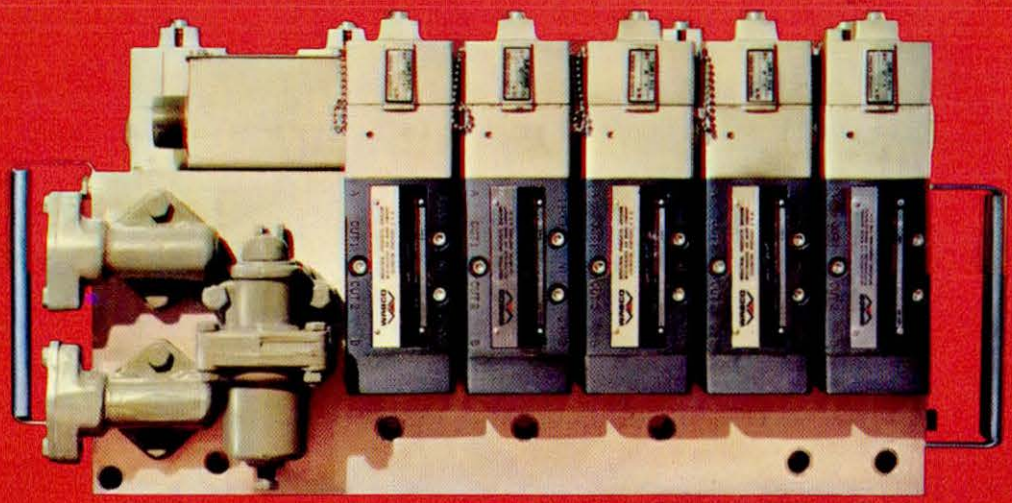
REVENUES AND EXPENSES OF RAILWAYS

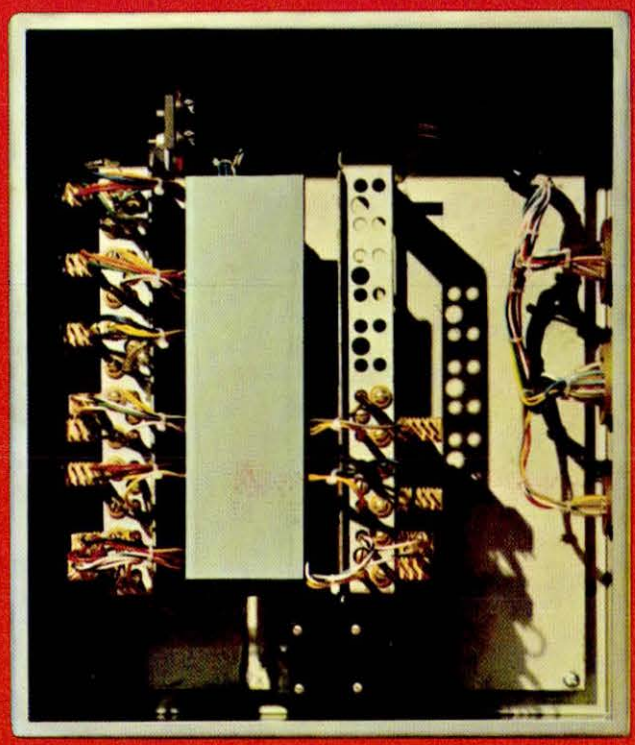
1965's overall average freight train speed was 20 mph.

Every railroad wants to raise overall train speeds and run trains on tighter schedules so they can reduce costs per ton-mile and be more competitive. But train speeds are usually limited by braking distances and signal spacings.

So what did WABCO do? We designed an electronic control system for a remote locomotive that could be located ⅔ of the way back in the train to speed brake response and shorten braking distances. You now







Here's the WABCO control system that can double it.

have shorter pipe lengths to charge, and therefore faster brake releases. This radio-linked system gives the engineman instant control of all power and brake functions so the train can go deeper into a signal block before braking.

The WABCO Remote Multiple Unit control system is tailor-made to provide the efficient braking and closer speed control necessary for the tightly scheduled trains of tomorrow. Power is more evenly distributed, and brake applications and releases are much faster; so slack action is smoother, drawbar strain is less, and the train can maintain higher speeds on grades.

The trend is to larger cars, tighter schedules, and higher average speeds—almost as fast as passenger trains. This advance in railroading will lower transportation costs but also will put critical demands on speed control equipment to maintain higher speeds within signal blocks. Meeting these demands is WABCO's business. Our speed control developments include: the WABCOPAC® Brake Assembly for more efficient control and response, the ABD Valve for accelerated releases, and the Remote Multiple Unit Control system for closer speed control and braking efficiency on high-speed freight trains. For more information, contact Westinghouse Air Brake Division of Westinghouse Air Brake Company, Wilmerding, Pa. 15148.

WABCO

WABCO HAS IT NOW—CLOSER SPEED CONTROL FOR TOMORROW'S FASTER FREIGHTS

Second Quarter and Six Months' Figures of Calendar Year 1968

(Dollar figures are stated in thousands: i.e., with last three digits omitted)

Name of Road		Average mileage operated during period	Operating Revenues: Freight	Pass.	Total (inc. misc.) 1968	Total (inc. misc.) 1967	Operating Expenses: Maint. Way and Structures: Total 1968	Total 1967	Deprec. and Retirements	Maint. Equipment: Total 1968	Total 1967	Deprec. and Retirements	Traffic	Transportation	Total 1968	Total 1967	Operating ratio 1968	Operating ratio 1967	Net from railway operation	Railways tax accruals	Net Railway operating income 1968	Net Railway operating income 1967
New York, New Haven & Hartford	3 mos.	1,503	16,670	9,051	31,055	31,044	4,366	4,677	684	5,991	6,112	1,301	610	16,251	29,397	29,599	94.7	95.3	1,657	2,876	−5,338	−4,989
	6 mos.	1,503	32,338	17,967	60,780	61,440	8,966	9,328	1,624	12,160	12,388	2,618	1,219	33,057	59,874	59,523	98.5	96.9	906	5,696	−12,190	−10,717
Norfolk & Western	3 mos.	7,583	156,257	606	163,540	148,863	16,904	16,119	2,314	25,769	24,541	10,898	3,343	57,695	111,433	106,095	68.1	71.3	52,108	17,342	27,729	25,363
	6 mos.	7,583	304,267	1,220	318,305	296,985	31,576	30,176	4,594	50,535	48,216	21,416	6,514	115,974	219,582	208,590	69.0	70.2	98,723	32,237	52,334	50,430
Norfolk Southern	3 mos.	624	2,626	—	2,682	2,578	493	560	70	422	408	178	151	836	2,162	2,169	80.6	84.1	520	217	107	33
	6 mos.	624	5,294	—	5,421	5,174	917	1,012	139	845	849	357	299	1,693	4,263	4,280	78.6	82.7	1,157	428	347	161
Northern Pacific	3 mos.	6,772	47,239	1,531	50,927	47,601	8,604	7,699	1,014	9,487	9,364	3,257	1,674	20,418	44,079	42,402	86.6	89.1	6,848	5,225	2,611	1,324
	6 mos.	6,781	91,345	2,499	98,247	92,714	14,752	13,945	2,344	18,996	19,471	6,445	3,197	41,177	86,196	84,316	87.7	90.9	12,050	10,660	3,516	1,384
Northwestern Pacific	3 mos.	324	2,889	10	2,907	2,383	609	723	86	116	142	5	21	841	1,818	1,756	62.5	73.7	1,089	191	329	−125
	6 mos.	324	5,277	11	5,306	4,377	1,113	1,549	151	215	275	8	41	1,602	3,280	3,534	61.8	80.7	2,025	410	503	−499
Penn Central Co.	3 mos.	19,209	327,541	25,736	392,081	386,968	42,447	41,544	6,471	62,662	66,314	16,193	6,479	180,779	313,846	313,866	80.0	81.1	78,236	27,598	7,060	9,047
	6 mos.	19,209	646,337	51,236	774,262	757,472	82,774	80,672	13,996	127,548	132,380	32,567	13,607	363,288	630,070	624,752	81.4	82.5	144,192	54,913	4,128	6,577
Penn-Reading Seashore Lines	3 mos.	322	1,782	31	1,946	1,993	443	409	61	366	407	64	15	1,346	2,291	2,305	117.7	115.7	−345	155	−995	−973
	6 mos.	322	3,595	53	3,920	3,950	868	781	138	754	780	138	29	2,700	4,581	4,533	116.9	114.8	−661	311	−1,952	−1,818
Piedmont & Northern	3 mos.	150	1,578	—	1,624	1,780	166	164	18	122	131	31	113	372	929	919	57.2	51.6	695	292	211	293
	6 mos.	150	3,203	—	3,302	3,451	320	325	38	239	246	61	220	755	1,842	1,833	55.8	58.1	1,459	622	455	540
Reading	3 mos.	1,229	22,866	1,697	27,238	25,276	4,270	3,846	604	5,020	4,752	1,676	698	11,301	23,076	22,207	84.7	87.9	4,162	2,175	451	−469
	6 mos.	1,230	44,844	3,476	53,680	51,221	7,936	7,113	1,190	10,117	9,929	3,358	1,362	22,805	45,783	44,257	85.3	86.4	7,897	4,335	822	−348
Richmond, Fredericksburg & Potomac	3 mos.	118	4,990	959	6,732	6,692	574	530	108	955	895	241	94	2,132	4,255	4,206	63.2	62.8	2,478	1,499	780	1,003
	6 mos.	118	9,351	1,918	12,872	13,339	1,103	1,057	208	1,826	1,783	503	189	4,290	8,385	8,593	65.1	64.4	4,487	2,634	1,479	1,827
St. Louis-San Francisco	3 mos.	4,577	39,468	—	41,032	37,408	5,473	4,969	702	5,692	5,263	2,084	1,402	14,801	29,601	27,547	72.1	73.6	11,430	4,003	5,121	4,486
	6 mos.	4,577	76,282	—	79,235	73,485	10,914	9,919	1,351	11,255	10,549	4,100	2,754	28,525	57,880	54,638	73.0	74.4	21,356	7,976	9,441	8,297
St. Louis Southwestern	3 mos.	1,565	27,561	—	27,910	24,484	2,322	1,848	216	4,476	3,606	2,188	687	9,092	17,285	15,048	61.9	61.5	10,625	4,119	6,844	6,680
	6 nos.	1,565	52,703	—	53,372	48,587	4,255	3,649	432	8,368	7,138	4,295	1,358	17,123	32,570	29,578	61.0	60.9	20,802	7,061	14,568	13,130
Savannah & Atlanta	3 mos.	167	1,148	—	1,150	1,189	199	269	−17	180	175	83	30	349	822	911	71.4	76.7	329	214	157	109
	6 mos.	167	2,303	—	2,341	2,395	408	426	−11	336	359	164	62	691	1,646	1,727	70.3	72.1	695	429	357	345
Seaboard Coast Line	3 mos.	9,305	99,020	5,466	109,390	107,407	14,397	14,030	1,384	19,942	19,279	6,228	3,499	42,513	86,419	82,925	79.0	77.2	22,971	7,665	6,127	9,381
	6 mos.	9,306	195,192	11,676	217,264	217,086	28,297	26,872	2,688	39,615	38,664	12,570	7,033	83,933	171,191	165,106	78.8	76.1	46,073	15,440	13,362	20,270
Soo Line	3 mos.	4,674	22,932	8	23,457	22,077	3,249	3,605	320	3,344	3,190	908	713	8,773	17,373	17,248	73.2	78.1	6,284	2,265	2,586	1,191
	6 mos.	4,675	44,908	11	45,867	42,706	6,050	6,768	639	6,394	6,412	1,782	1,440	17,582	33,655	34,357	73.3	80.4	12,212	4,254	5,151	1,302
Southern Railway	3 mos.	6,085	79,991	1,071	84,310	80,934	10,241	9,128	964	14,613	13,676	4,551	2,133	27,119	58,843	55,387	69.8	68.4	25,467	9,001	10,134	11,743
	6 mos.	6,085	158,801	2,067	167,411	159,304	19,573	17,317	2,010	29,003	27,030	9,008	4,184	54,129	116,335	109,408	69.5	68.7	51,076	17,440	21,581	22,372
Alabama Great Southern	3 mos.	327	5,401	76	5,860	4,878	698	663	155	1,018	973	331	142	1,935	4,102	3,822	70.0	78.3	1,758	461	851	320
	6 mos.	327	10,547	140	11,472	9,954	1,387	1,256	269	2,040	1,981	664	272	3,826	8,109	7,566	70.7	76.0	3,363	837	1,673	799
Cinn., New Orleans & Tex. Pac.	3 mos.	337	11,963	61	12,532	10,947	1,293	1,234	222	2,597	2,610	1,038	289	3,561	8,307	8,112	66.3	74.1	4,225	1,334	3,044	2,054
	6 mos.	337	23,292	129	24,497	21,133	2,529	2,287	448	5,153	5,269	2,004	580	7,035	16,424	15,928	67.0	75.4	8,073	2,610	5,722	3,748
Georgia Southern & Florida	3 mos.	395	3,704	—	3,805	2,605	486	507	32	207	175	26	79	923	1,867	1,753	49.1	67.3	1,939	439	448	−69
	6 mos.	395	7,327	5	7,503	5,145	1,064	978	73	396	352	52	147	1,830	3,749	3,375	50.0	65.6	3,754	837	794	−55
New Orleans & Northeastern	3 mos.	203	3,243	63	3,514	2,863	459	381	93	673	636	277	80	1,140	2,549	2,262	72.6	79.0	964	368	474	262
	6 mos.	203	6,323	121	6,849	5,821	902	844	197	1,358	1,298	554	156	2,285	5,108	4,644	74.6	79.8	1,741	717	794	500
Southern Pacific	3 mos.	11,763	210,199	3,073	220,569	203,547	28,381	22,684	2,603	41,366	42,904	13,669	3,384	85,451	170,355	161,937	77.2	79.6	50,214	19,843	18,114	13,205
	6 mos.	11,764	400,057	5,906	420,387	400,901	50,477	44,393	5,158	80,451	82,316	27,268	6,725	164,103	325,318	315,653	77.4	78.7	95,069	38,576	34,259	28,332
Spokane, Portland & Seattle	3 mos.	922	9,061	184	9,860	10,176	1,418	1,300	179	1,565	1,477	393	128	3,865	7,432	7,054	75.4	69.3	2,428	1,302	523	836
	6 mos.	922	18,500	315	20,013	19,493	2,907	2,727	360	3,087	3,028	783	259	7,863	15,037	14,350	75.1	73.6	4,976	2,183	1,519	1,311
Texas & Pacific	3 mos.	2,016	18,800	714	20,423	19,138	2,789	2,364	361	3,455	3,655	1,282	671	7,863	15,650	14,863	76.6	77.7	4,773	1,341	2,244	1,440
	6 mos.	2,016	35,883	295	39,165	37,431	5,594	4,901	680	6,997	6,988	2,495	1,330	15,170	30,865	29,308	78.8	78.3	8,300	2,347	3,388	2,649
Toledo, Peoria & Western	3 mos.	239	2,100	—	2,259	2,098	266	284	21	249	118	56	170	777	1,642	1,533	72.7	73.1	617	228	176	123
	6 mos.	239	4,026	—	4,363	4,191	468	487	41	448	355	105	342	1,531	3,124	3,002	71.6	71.6	1,239	432	358	249
Union Pacific	3 mos.	9,489	132,684	3,796	143,761	139,969	17,354	15,243	1,804	27,017	27,284	12,049	3,861	52,931	109,801	104,084	76.4	74.4	33,960	18,096	15,399	17,243
	6 mos.	9,489	262,707	6,538	283,499	276,320	34,262	30,214	3,381	54,151	54,424	23,959	7,503	105,212	217,913	207,797	76.9	75.2	65,587	33,804	31,977	32,926
Western Maryland	3 mos.	866	11,607	—	12,156	11,506	1,876	1,917	191	2,887	2,935	940	443	4,312	10,236	10,077	84.2	87.6	1,920	1,122	1,941	1,836
	6 mos.	866	23,501	—	24,673	24,100	3,737	3,716	371	6,216	5,888	1,880	877	8,874	21,137	20,451	85.7	84.9	5,536	2,221	3,669	3,645
Western Pacific	3 mos.	1,176	15,474	522	16,291	14,454	1,997	2,062	264	2,830	2,705	970	850	5,702	12,692	12,540	77.9	86.8	3,599	1,398	1,729	1,245
	6 mos.	1,176	30,257	861	31,704	29,440	4,020	3,910	553	5,643	5,477	1,939	1,710	11,422	25,484	24,788	80.4	84.2	6,219	2,308	2,962	2,728

Would You Believe???

***One* Source Supplies All These Products...**

- ☐ Truck Bolsters
- ☐ Side Frames
- ☐ Center Braces
- ☐ Strikers
- ☐ Draft Lugs
- ☐ Draft Arms
- ☐ Underframe Ends
- ☐ CR — Underframes
- ☐ Center Plates
- ☐ Sliding Sill Center Plates
- ☐ Center Sill Extensions
- ☐ Fulcrum Brackets
- ☐ Cushion-Ride Trucks
- ☐ 6, 8, 10 & 12 Wheel Trucks
- ☐ Elasto-Cushion Trucks
- ☐ Wedge Blocks
- ☐ Couplers
- ☐ Yokes
- ☐ Hopper Door Frames
- ☐ Trailer Hitch Heads
- ☐ Container Pedestals
- ☐ Bearing Retainer Keys
- ☐ Knuckles
- ☐ 3-Pc. Underframe Ends
- ☐ Modular Body Bolsters
- ☐ Rotating Couplers
- ☐ Modular End Sill Corner Posts
- ☐ Spring Seat Brake Hanger Brackets
- ☐ Journal Boxes
- ☐ Span Bolsters
- ☐ Unit Bolsters
- ☐ Package Units
- ☐ Stub Strikers
- ☐ Special Couplers
- ☐ Military Armor
- ☐ Equipment Bases
- ☐ Track Treads
- ☐ Coupler Locks
- ☐ Corner Castings
- ☐ Inside Diagonal Braces

YES... Buckeye makes them all

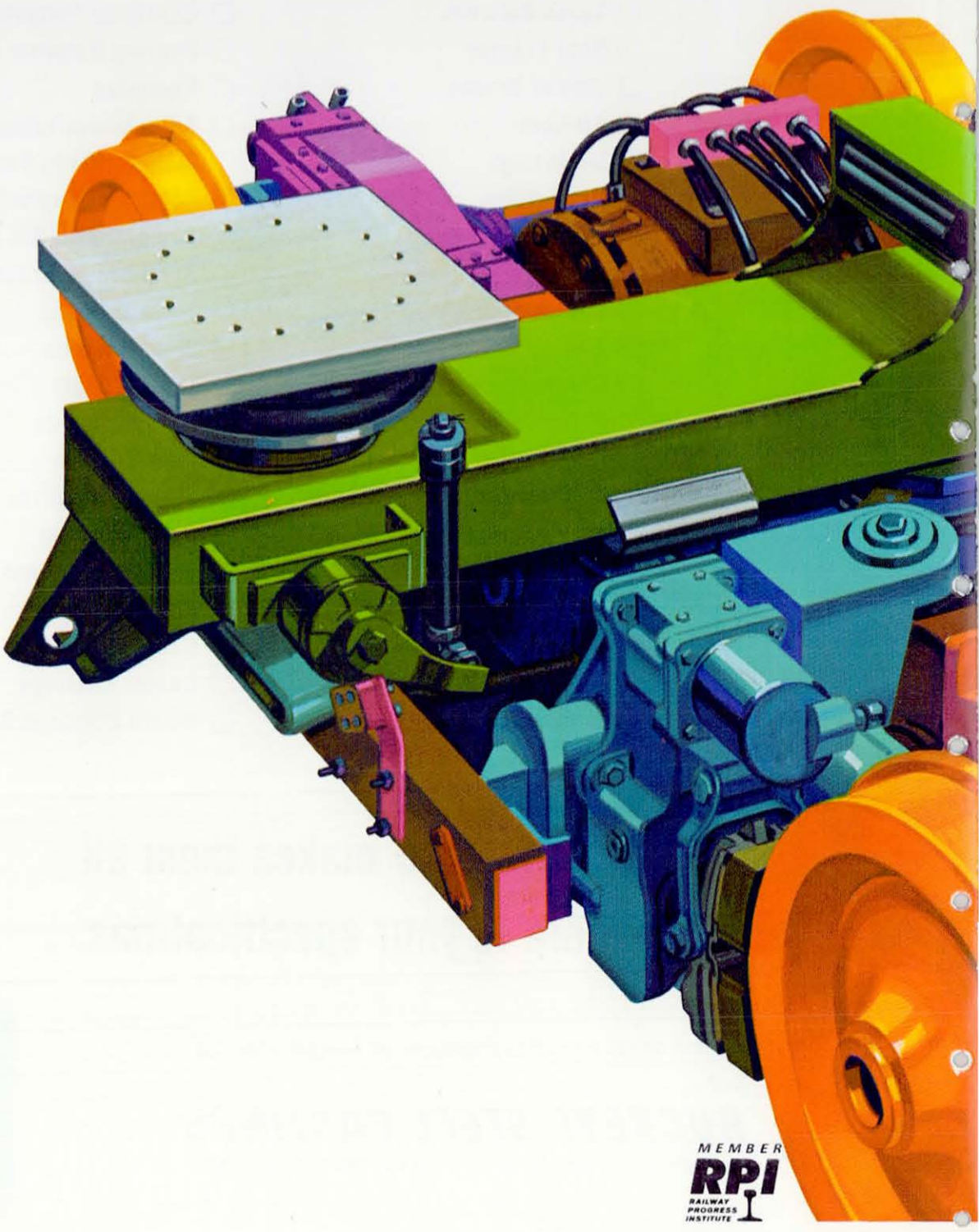
...and many more to your specifications.

America's Most Versatile Producer of Freight Car Castings

BUCKEYE STEEL CASTINGS

A BUCKEYE INTERNATIONAL COMPANY • COLUMBUS, OHIO 614/444-2121

The Budd Truck is the Welded Wonder.

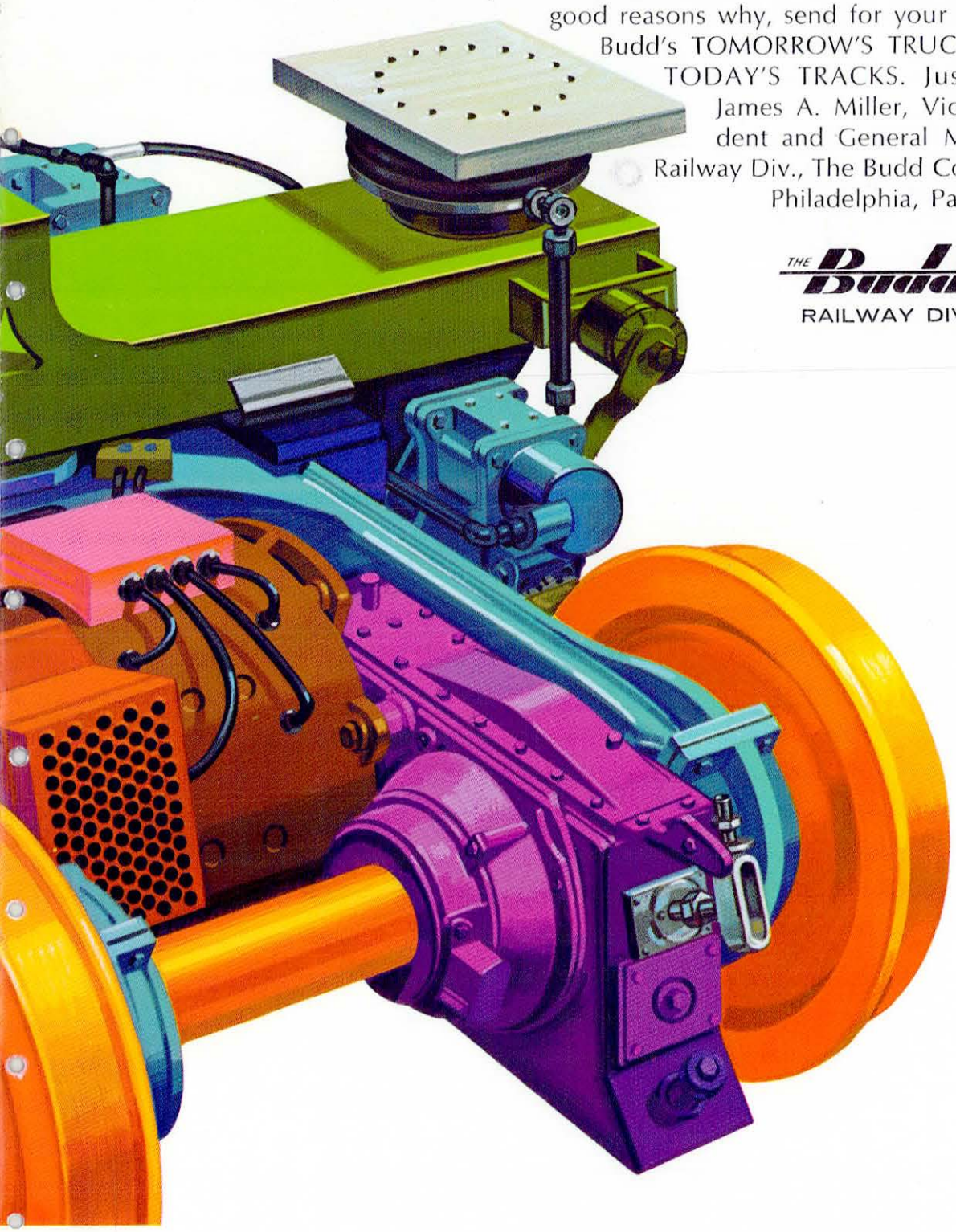


MEMBER
RPI
RAILWAY PROGRESS INSTITUTE

Only Budd trucks are welded. Not cast. We put the right metals in the right places, use fewer parts, reduce maintenance—and give you the lightest truck in the business.

Budd trucks—we have a whole family of them—are designed to work with any new passenger equipment going. Or coming. They have a long list of features that offer Budd-only advantages — including air suspension, the most direct load path, rubber at all wear points for quiet and wear-saving contact, and automatic car leveling for the smoothest kind of a ride.

Right now, there are more Budd trucks on order for the new generation of transit, commuter, and intercity cars than all other trucks combined. For more good reasons why, send for your copy of Budd's TOMORROW'S TRUCKS FOR TODAY'S TRACKS. Just write James A. Miller, Vice President and General Manager, Railway Div., The Budd Company, Philadelphia, Pa. 19115.



THE Budd COMPANY
RAILWAY DIVISION

MEMBER RPI

VAPOR SPEED INDICATOR SPEED-LOG®

Why do major railroads specify Speed-Log for their locomotives?

Major railroads are buying Vapor Speed-Log because they know they're getting the most modern approach in electronic speed indication equipment, the best available. Because they know, only Speed-Log gives them accurate read-at-a-glance, from any angle, digital speed indication.

Major railroads are specifying Speed-Log Control System because they know from long experience that Vapor's background of electronic capability assures them, more than anything else, proved accuracy, proved reliability and proved quality of material.

See how easy it is to install the modern Speed-Log System on your locomotive. Ask your Vapor salesman. He can show you our new 16-minute color film in your office, at your desk. He wants you to know what modern men on the major railroads know.

RAIL AND TRANSIT DIVISION

VAPOR®

VAPOR CORPORATION
6420 WEST HOWARD STREET, CHICAGO, ILLINOIS 60648
A Subsidiary of The Singer Company

ELECTRONIC CAPABILITY VAPOR PROVED ELECTRONIC CAPABILITY VAPOR PROVED ELECTRONIC CAPABILITY VAPOR PROVED ELECTRONIC CAPABILITY VAPOR PROVED

HANDLED WITH CARE

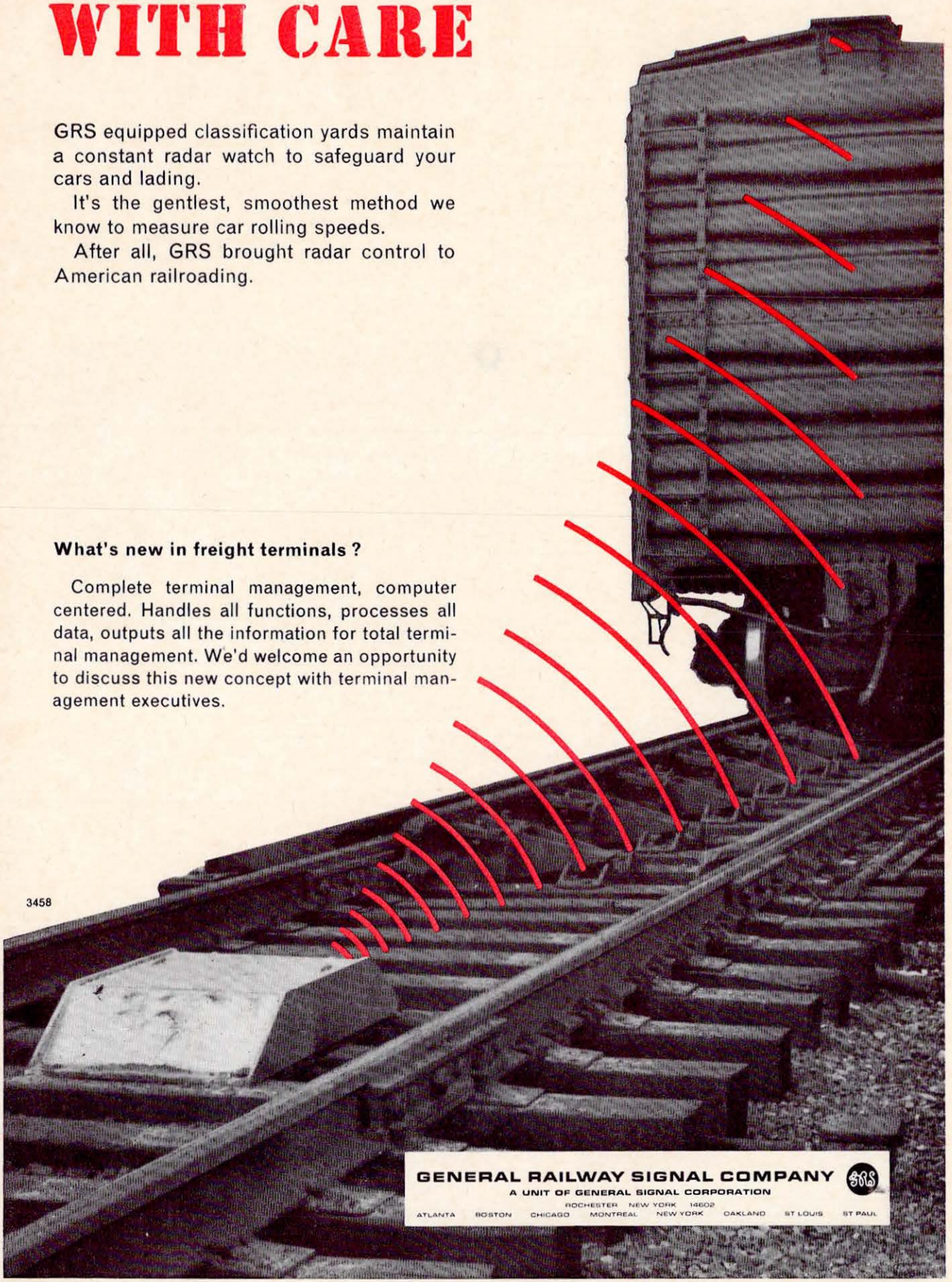
GRS equipped classification yards maintain a constant radar watch to safeguard your cars and lading.

It's the gentlest, smoothest method we know to measure car rolling speeds.

After all, GRS brought radar control to American railroading.

What's new in freight terminals ?

Complete terminal management, computer centered. Handles all functions, processes all data, outputs all the information for total terminal management. We'd welcome an opportunity to discuss this new concept with terminal management executives.



3458

GENERAL RAILWAY SIGNAL COMPANY

A UNIT OF GENERAL SIGNAL CORPORATION

ROCHESTER NEW YORK 14602

ATLANTA BOSTON CHICAGO MONTREAL NEW YORK OAKLAND ST LOUIS ST PAUL

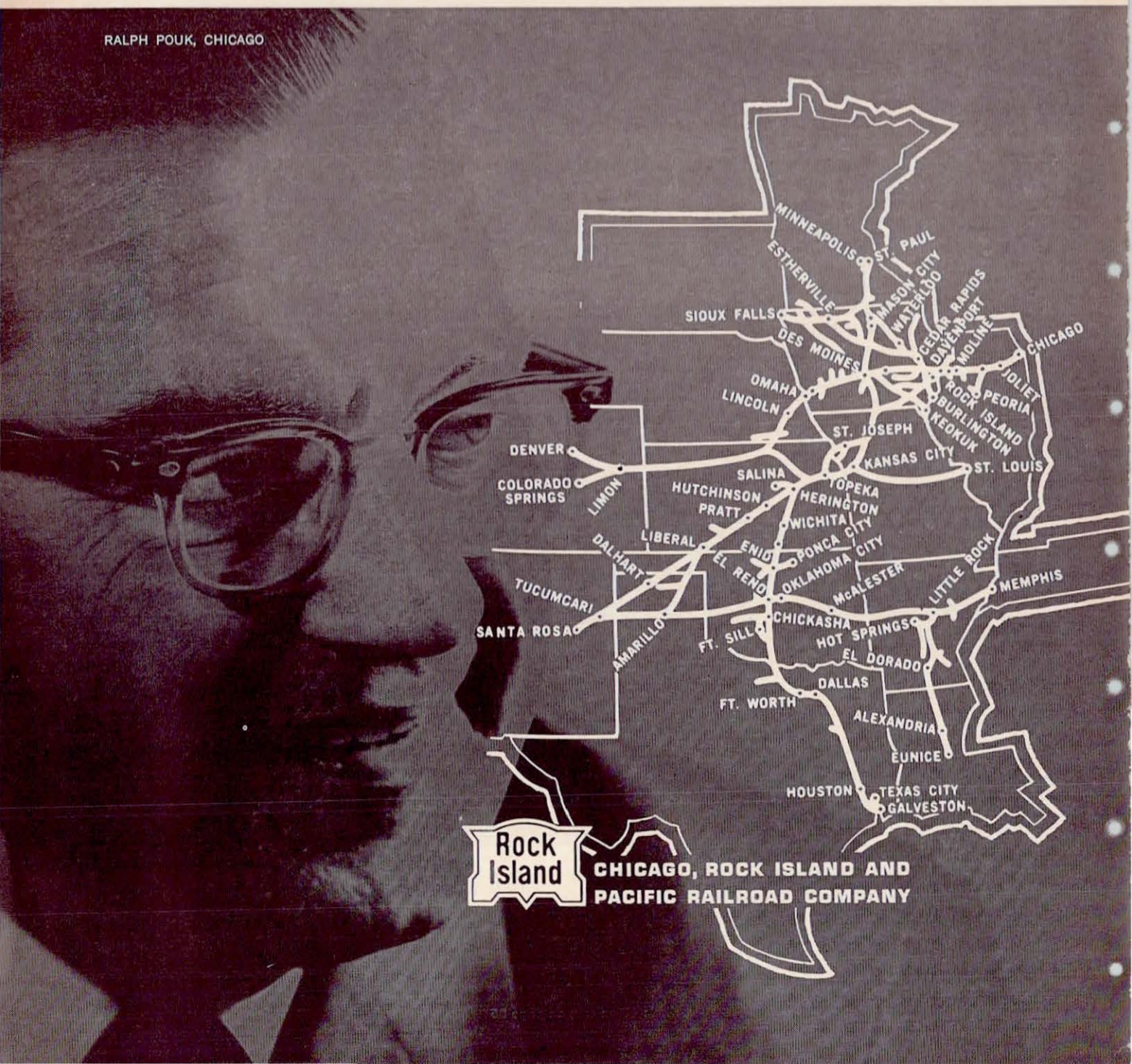
Your job is to move goods.
His job is to design a communications system to help you.
He's the Stromberg-Carlson Man-on-the-Scene

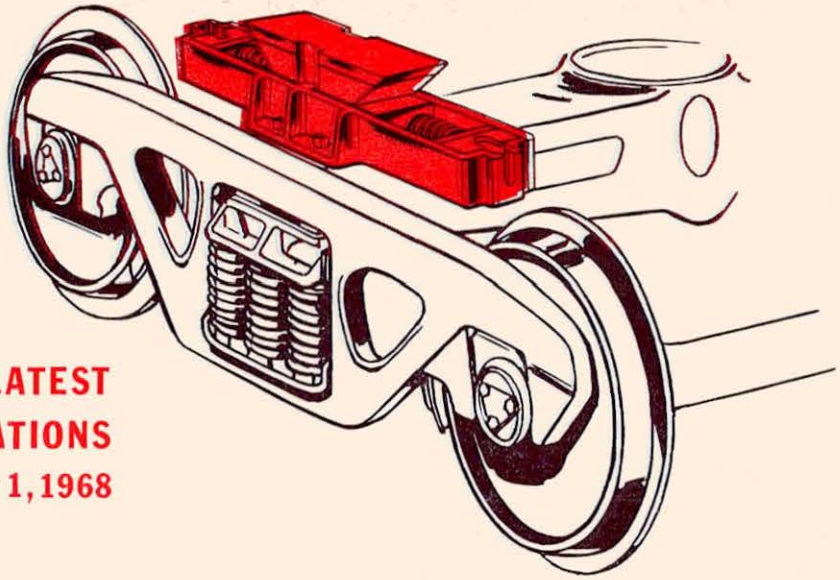
Carrying freight and carrying messages have a lot in common. Problems are similar. Solutions are similar.
So our Man-on-the-Scene would know a great deal about railroading even if he hadn't specialized in railway communication systems. *Which helps explain why more than half of the major railroads that operate their own communication systems buy them from Stromberg-Carlson.* Our systems in actual service include: 124 PABX's (serving over 10,100 lines and 15,100 telephones). 33 four-wire switching systems (handling 1235 circuits). 130 message-circuit dialing systems (serving 2600 stations) . . . plus multiplex, subscriber carrier, and dispatcher tone dialing systems.

This is only a fraction of what we're doing to help railroads deliver the messages that help deliver the goods.

And every system, every piece of equipment, is fully backed by our total support services. For more information, call 716-482-2200. Or write Railroad Division, 100 Carlson Road, Rochester, N. Y. 14603.

Stromberg-Carlson
A Subsidiary of General Dynamics



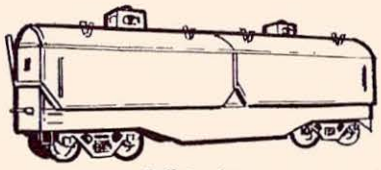


MEETS LATEST AAR REGULATIONS effective January 1, 1968

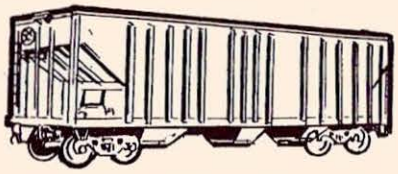
UNITY NO SWAY® SIDE BEARING STABILIZER

AN ENGINEERING CONCEPT THAT NOT ONLY KEEPS YOUR CARS ON THE RAILS, BUT ALSO DRASTICALLY REDUCES DAMAGE TO LADING AND CAR STRUCTURE

SUCCESSFULLY TESTED AND PROVEN ON NUMEROUS RAILROADS AND NOW OPERATING IN CONTINUOUS SERVICE ON THESE AND OTHER CARS

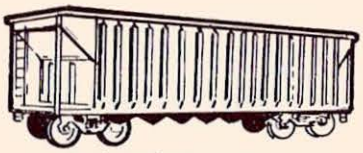


Coil Steel Cars

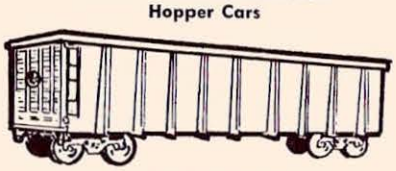


Open Top Hopper Cars

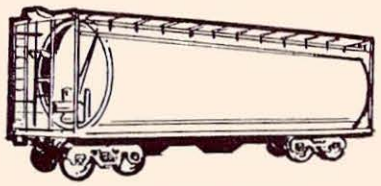
High Cube Auto Parts Box Cars



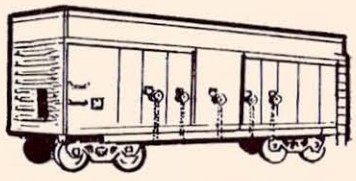
Steel or Aluminum Covered Hopper Cars



Aluminum Gondola Cars



Cylindrical Covered Hopper Cars



Wood Chip Cars

FOR COMPLETE DETAILS—WRITE OR PHONE

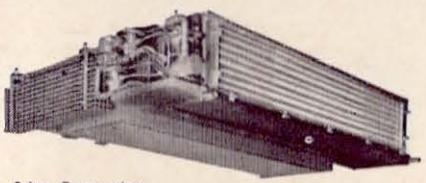
Unity RAILWAY SUPPLY CO., INC.

200 S. MICHIGAN AVENUE • PHONE 312—939-3438
CHICAGO, ILLINOIS 60604

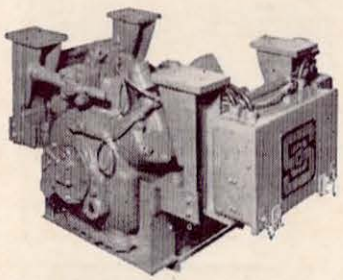
SEE OUR DISPLAY BOOTH NOs. 158-159, SHERMAN HOUSE, SEPT. 29-OCT. 3

Circle 44 on coupon page 85

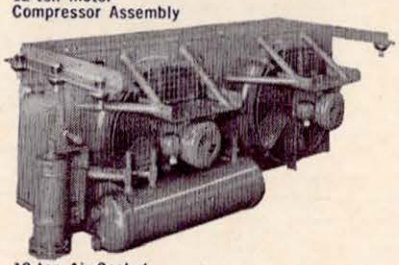
Modern Transportation Includes Safety Air Conditioning



6-ton Evaporator and Blower Assembly, overhead unit



12-ton Motor-Compressor Assembly

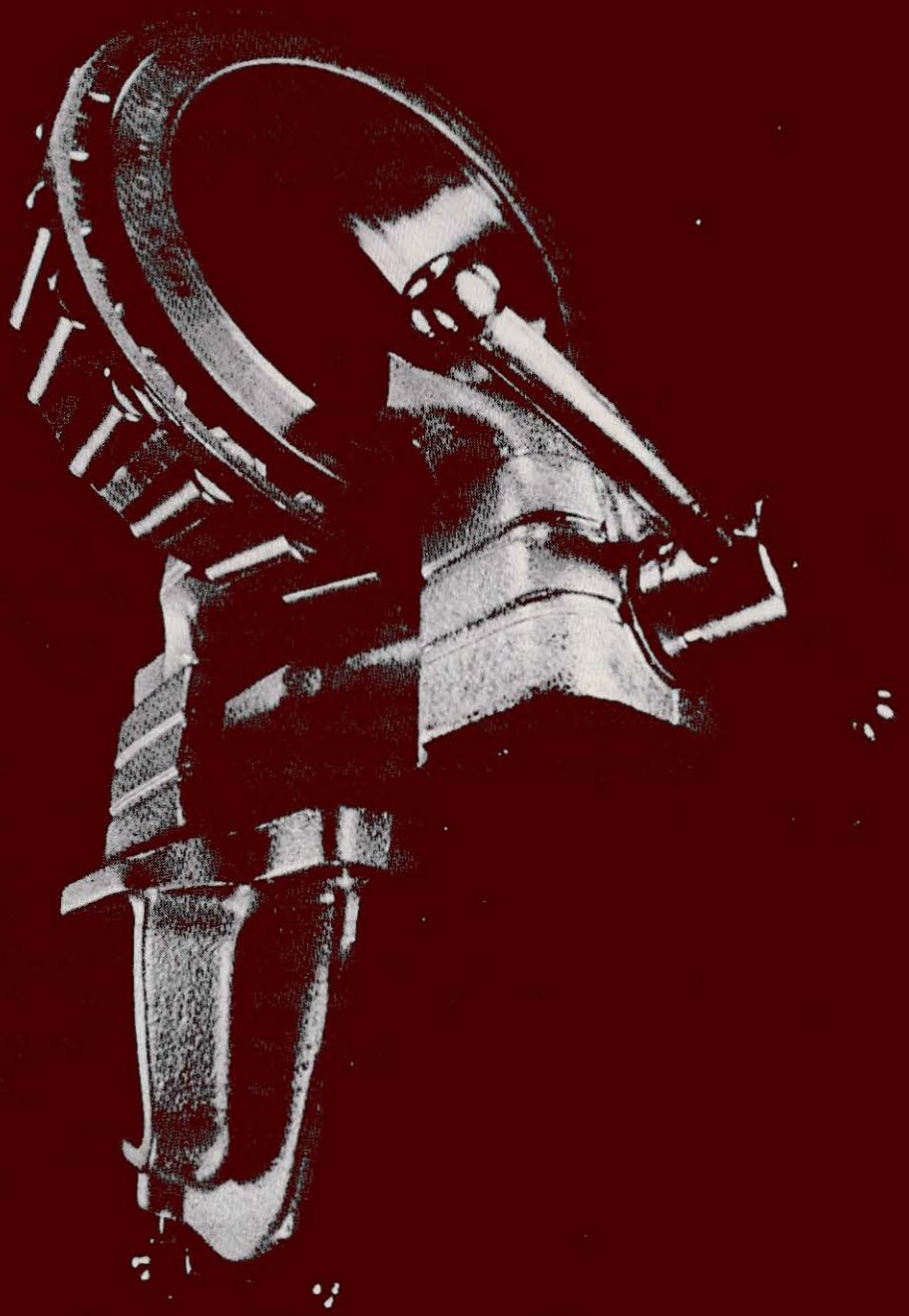


12-ton Air-Cooled Condenser

These units are part of the **Safety** Equipment which provides the air-conditioning for cars on the new high-speed Northeast Corridor trains. A motor-compressor assembly, air-cooled condenser unit, and a motor starter and control panel are each separately mounted under each car. Two six-ton evaporator and blower assemblies are installed above the ceiling, one at each end of the car.

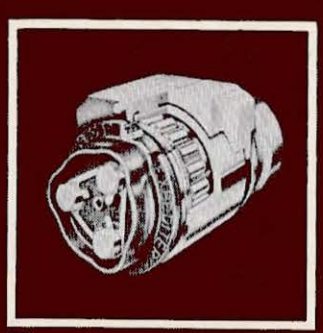
Safety ELECTRICAL EQUIPMENT CORP.

NEW YORK · CHICAGO · PHILADELPHIA · RICHMOND · ST. LOUIS · SAN FRANCISCO · NEW HAVEN · MONTREAL
1187 DIXWELL AVE., NEW HAVEN, CONN. 06514 TEL. 203: 865-3171



Caught in a vise with tapers?

Get freedom from lateral checking with SKF cylindricals.



We solve your lateral checking problems at the factory. When you mount SKF® "Expediter"® cylindrical roller bearings, lateral play is not affected. There's no requirement for close-tolerance spacers. Or dial gauges. No mounting and remounting. What's more, SKF cylindricals disassemble completely for easy inspection and economical replacement of individual parts. And bearing life is 20% longer. Ask your Abex representative. Or write for our "Expediter" booklet to:

Abex CORPORATION

Railroad Products Division

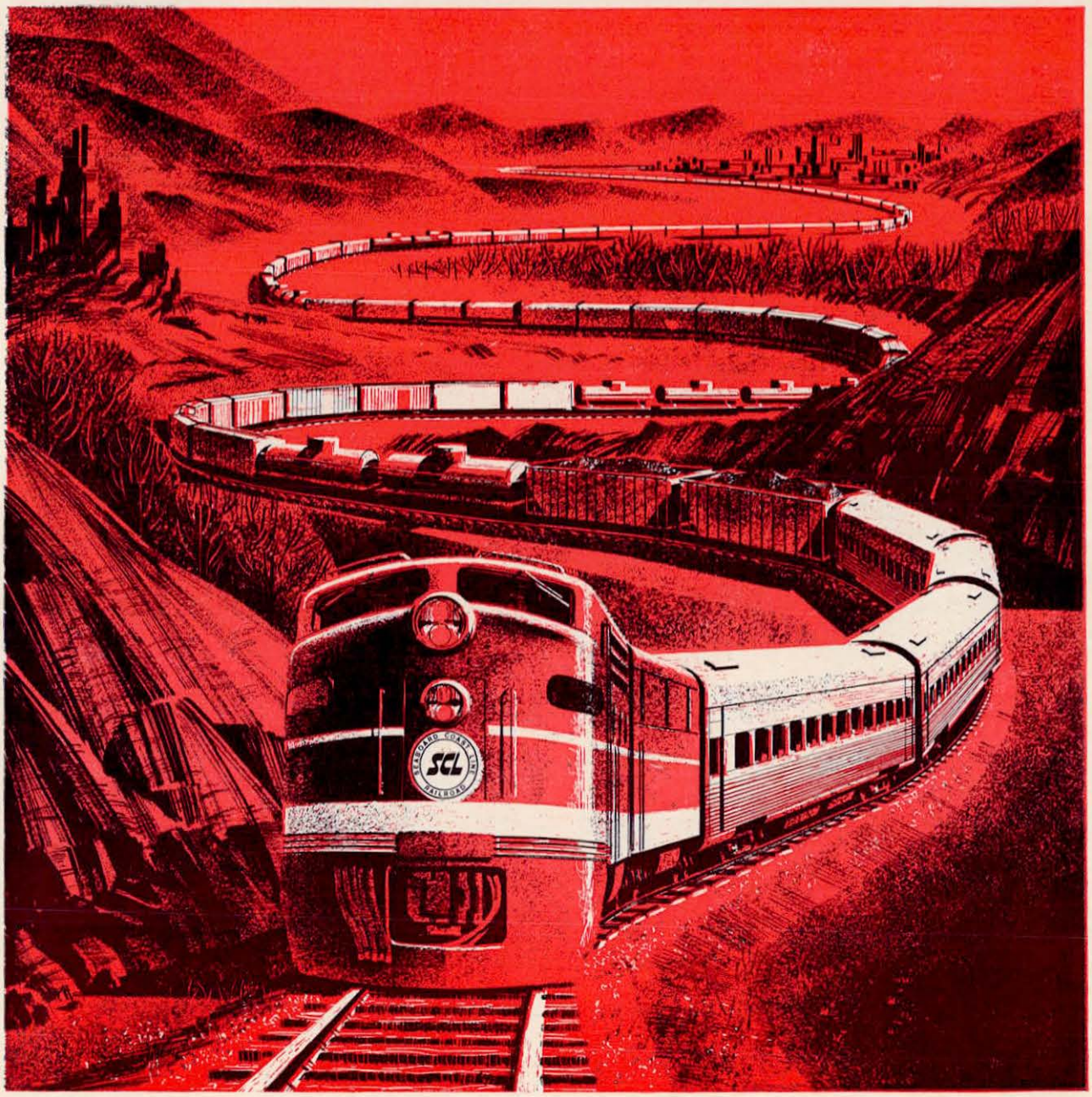
530 FIFTH AVENUE, NEW YORK, N.Y. 10036

6749

®A REGISTERED U.S. TRADEMARK OF SKF INDUSTRIES, INC.

"G" DESIGN "EXPEDITER" SALES AND SERVICE BY ABEX CORPORATION.

Seaboard



Coast Line

Building a new future with a 600-mile train.

60,000 passenger and freight cars—enough to make up a 600-mile train.

This is the new Seaboard Coast Line. It is also 1,000 locomotives. Some 10,000 route miles of track.

And service—better service with greater economy—that assures growth and success of the Seaboard Coast Line as the nation's newest and eighth largest railroad.

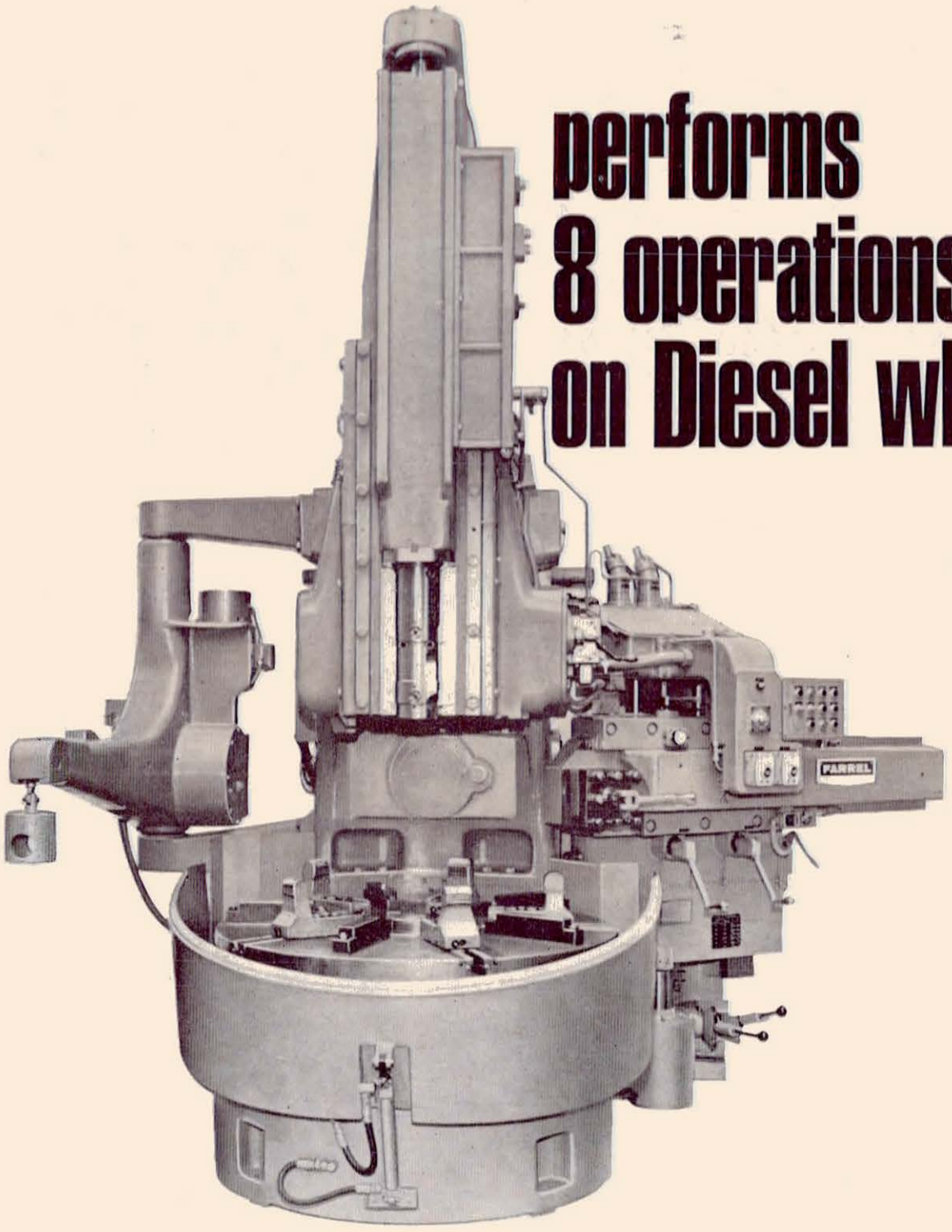
Faster, more dependable and flexible schedules. More direct routing. Improved port terminal facilities. More specialized equipment. Reduced loading minimums. Elimination of switching charges.

As the Seaboard Coast Line serves shippers and passengers in six Southeastern states, American Oil continues to offer technical assistance and convenient supply points for diesel fuels and lubricants.
American Oil Company, Chicago, Illinois 60680.
"You expect more from American and you get it!"*

AMERICAN

©1968, The American Oil Company, Chicago, Ill. *Trademark

performs 8 operations on Diesel wheels



Designed for speed and accuracy, the Farrel Diesel-wheel borer is a truly versatile machine. It will rough-bore, finish-bore and chamfer in a continuous cycle . . . will face and turn both sides of the hub and face the flange side of the wheel rim. Wheels are automatically centered and chucked . . . boring is fully automated from start to finish.

Electronic control of the hydraulic-feed side head permits the operator to dial direction as well as rate of either feed or traverse—with no stopping to shift gears in between. Hence, transfer from vertical to horizontal feed, or vice versa, is a smooth, continuous movement, with no tool drag in the large radii.

Contact Farrel to discuss in detail the economics of versatile, automatic wheel boring.

FARREL CORPORATION
RAILROAD EQUIPMENT DIVISION
565 Blossom Road, Rochester, New York 14610
Telephone: 288-4600 (Area Code 716)

FARREL

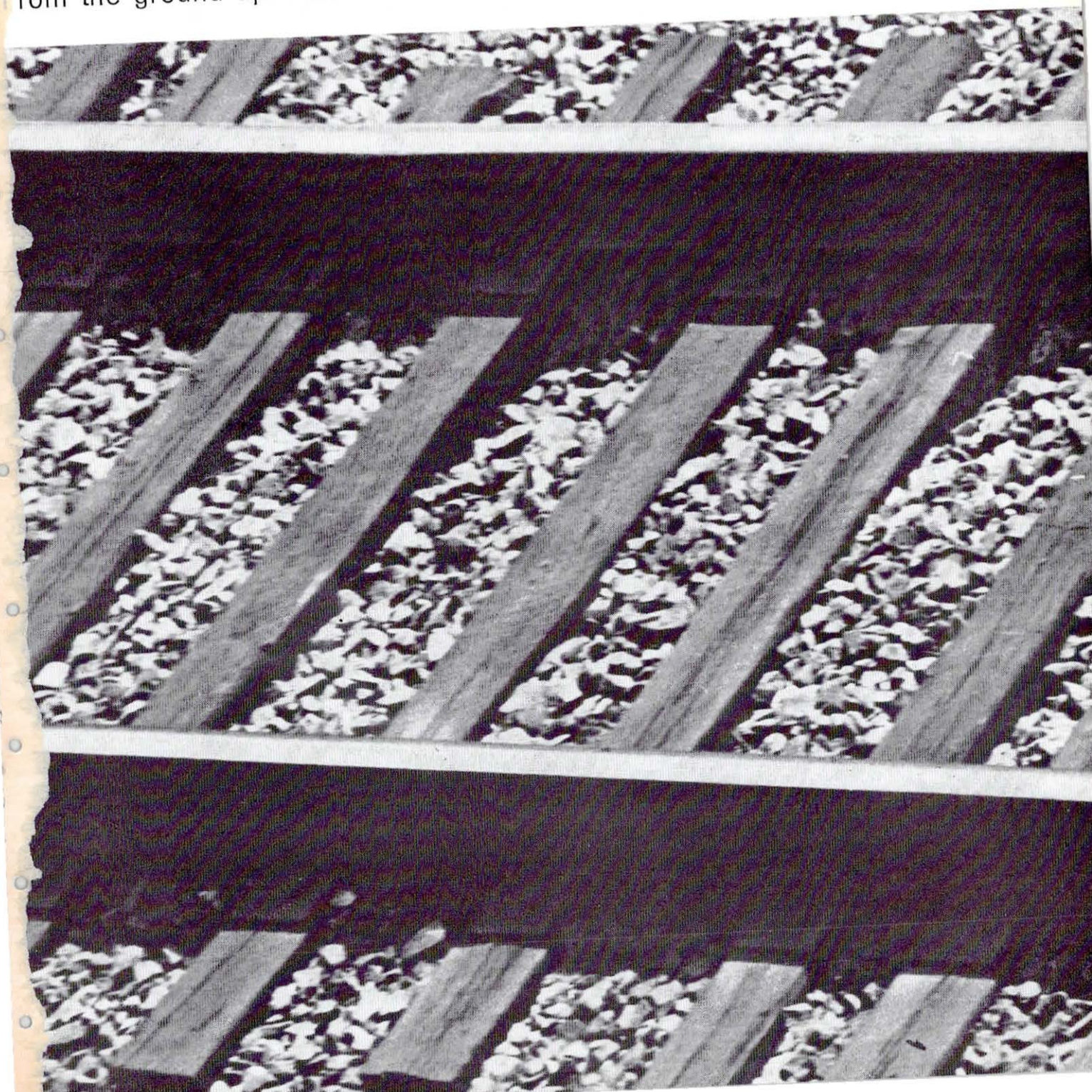
THE WORLD'S MOST COMPLETE LINE OF WHEEL-SHOP EQUIPMENT: Wheel Lathes • Dual End-drive Axle Lathes • Car-wheel Borers • Underfloor Wheel-truing Machines • Mounting and Demounting Presses • Completely Automated Wheel and Axle Shops • Automated Axle Manufacturing Machining Centers FR-255

RPI

When a railroad has a lot of ground to cover, it needs a lot of freight cars to cover it. That's where we come in. Our specialty is building freight cars. Also, building most of the parts and pieces that go into freight cars. Sides, ends, underframes, centerplates, draft lugs, grab irons and more. We'll put them together any way you specify. Or we can rebuild them into any old car you care to send us. A phone call will lay the groundwork.

BERWICK FORGE & FABRICATING CORP.
Box 188 Berwick, Pa. 18603 Chicago: 80 E. Jackson Blvd.
Arlington: Southeastern Railway Supply, Inc., 933 Kenmore St.

From the ground up. That's how we build new cars. Or rebuild old ones.



the Griffin is a big wheeler

Griffin has the capacity to turn out nearly 6000 car sets of axle assemblies each year. We offer this service to railroads and car builders who do not have this capability at their own facility.

Mounted wheels can be delivered direct to your production line as needed. This will eliminate expensive intermediate storage and double handling.

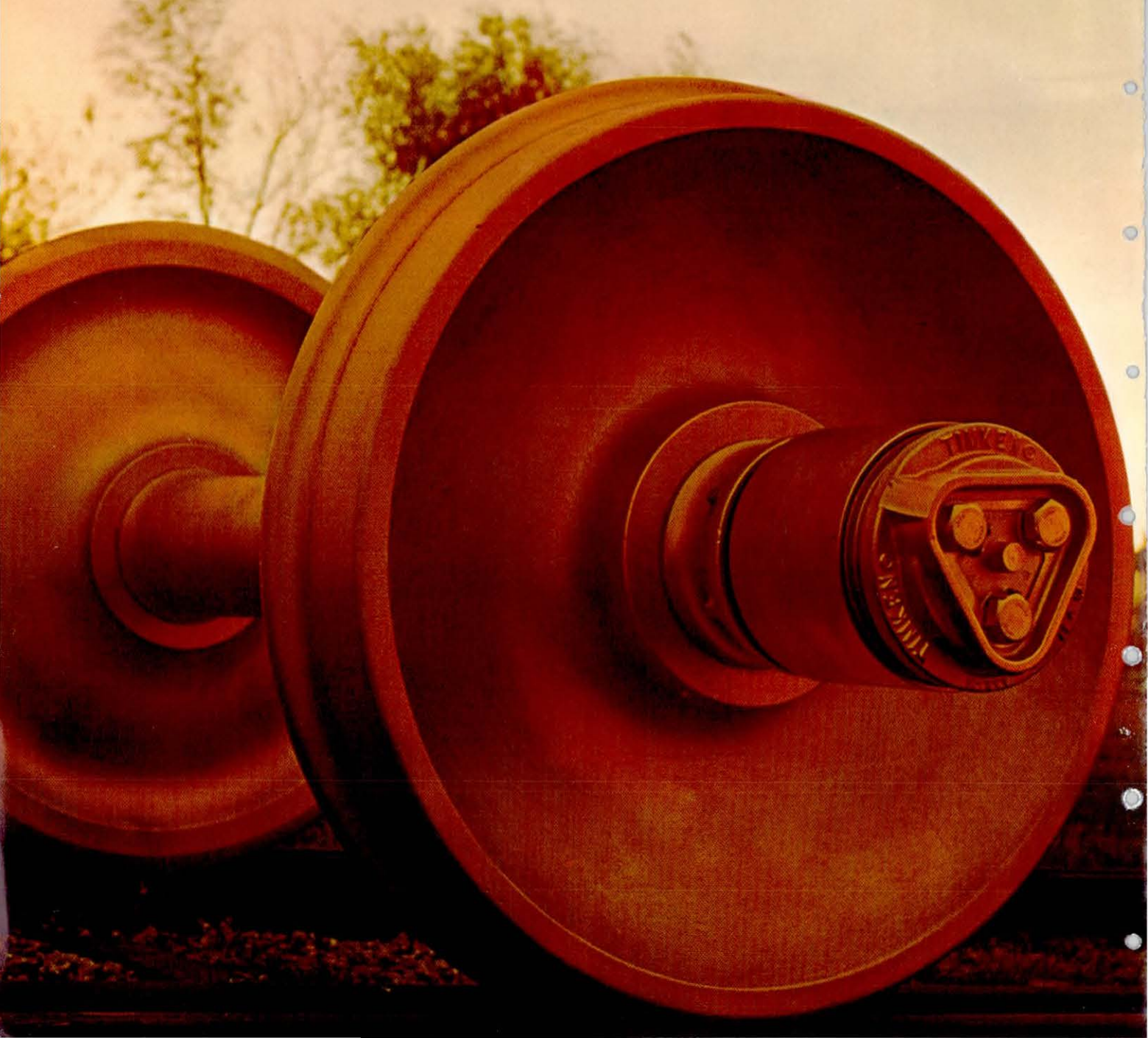
For more than 90 years Griffin has been giving railroad men the best in wheels. We expect to keep on rolling.

GRIFFIN WHEEL COMPANY

445 N. SACRAMENTO BOULEVARD • CHICAGO, ILLINOIS 60612

MEMBER RPI

ONE OF THE Amsted INDUSTRIES



ANNOUNCING

The Super Truck

New SCULLIN Super Strength Castings

A product of our continuing research to find better ways for you to run a railroad — our new, improved-design freight car side frame and bolster castings are built especially for today's high speed, high mileage, big payload freight cars. Recommended for super trains and unit train operations, Scullin's new, over-standard Grade C side frames and bolsters exceed hi-tensile steel requirements and offer increased section strength as well as the "toughness" of tempered steel. This built-in extra stamina means higher impact resistance — to help withstand over-solid blows from shock-loading resulting from humping and car "rock and roll". It's another Scullin technological step forward, which over the long haul will mean more profitable railroading for you.

For more information, call or write
Paul F. Gutmann, Jr., V.P. Engineering

SCULLIN STEEL CO.

A Subsidiary of Diversified Metals Corporation

St. Louis, Missouri 63139-6700 Manchester Avenue

SALES OFFICES:
Chicago, Illinois 60604-332 S. Michigan Ave.
Philadelphia, Pa. 19103-1281 Suburban Sta. Bldg.

REPRESENTATIVES:
Baltimore, Md. 21202-N. S. Kenney Co.-1815 Munsey Bldg.
Richmond, Va. 23230-Samuel P. Goodloe- 3600 W. Broad St.
San Francisco, Calif. 94124-J. C. Fennelly Co.-1485 Bayshore Blvd.
Montreal (2) Canada-Consolidated Equipment Co., Ltd.-Dominion Square Bldg.

RPI RAILWAY PROGRESS INSTITUTE

"See us at booths 307-308, Sherman House, Railway Supply Association Meeting, Sept. 29-Oct. 2."

Circle 51 on coupon page 85

GET THE NEW ABEX HF BRAKE AND GET LESS FOR YOUR MONEY.

Less weight. The Abex HF Brake weighs up to 415 pounds less than other truck mounted brakes. Less weight means more payload.

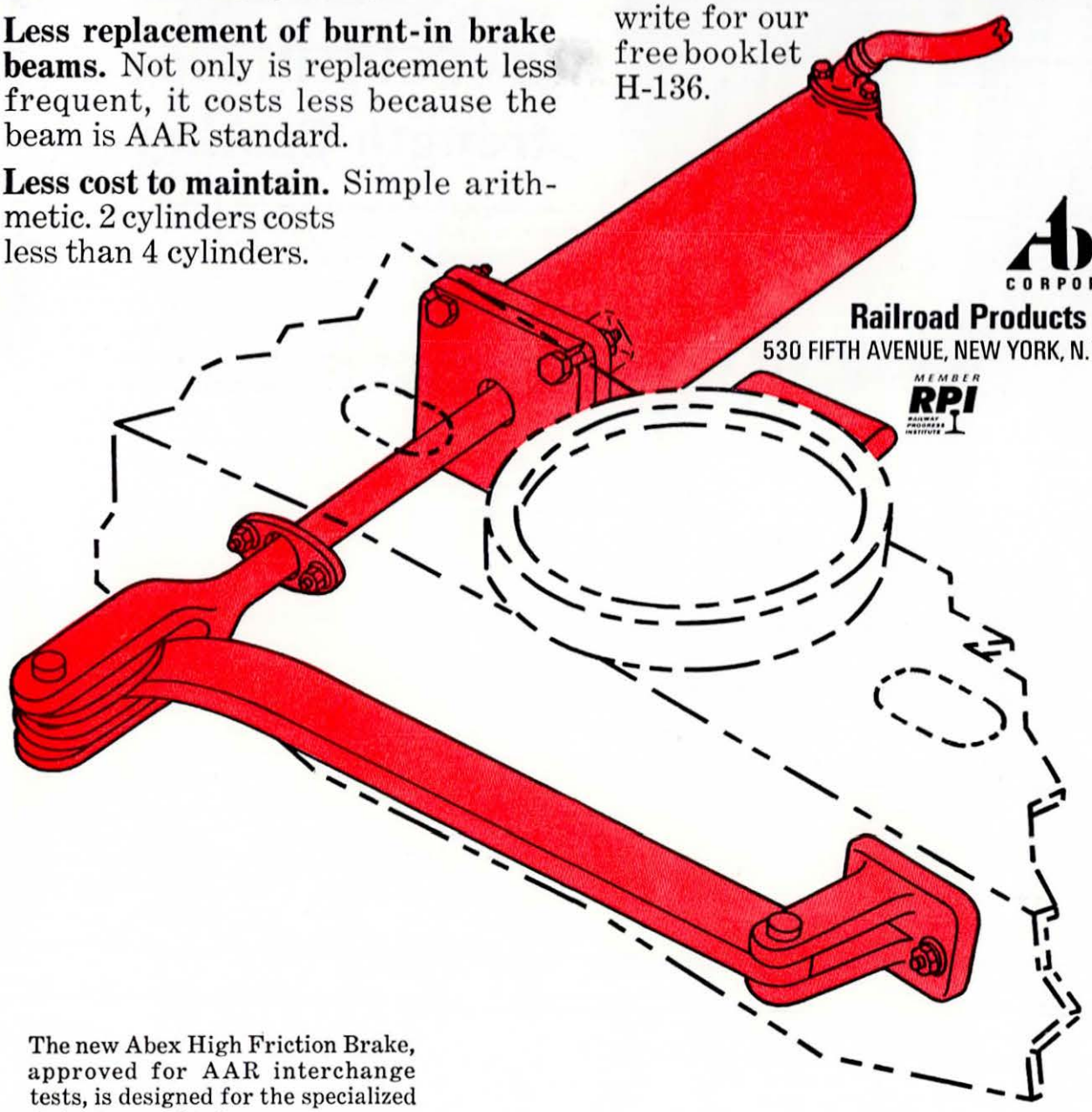
Less inventory. The Abex HF Brake has only 2 cylinders per car. Shoes, keys, levers, pins, beams and rods are standard inventory items.

Less replacement of burnt-in brake beams. Not only is replacement less frequent, it costs less because the beam is AAR standard.

Less cost to maintain. Simple arithmetic. 2 cylinders costs less than 4 cylinders.

Less chance for a loaded car run-away. Because of improved hand brake performance, a loaded car will hold itself on a 3% grade.

Talk to your Abex Railroad Products man. Ask him how you can get less for your money with the Abex HF Truck Mounted Brake. In the meantime, write for our free booklet H-136.



Abex CORPORATION
Railroad Products Group
530 FIFTH AVENUE, NEW YORK, N.Y. 10036
MEMBER RPI

The new Abex High Friction Brake, approved for AAR interchange tests, is designed for the specialized freight cars of today.

Booth 343—Hotel Sherman—Chicago

New SLIDEWELL Door Control Solves Serious Shipper Problem and Cuts Cost of Car Door Replacement and Repair

Why put up with the extra cost and inconvenience of present day car door opening-closing practices? Shippers can forget the forklifts and put away the sledgehammers, crowbars, cables, chains and blocks. There's no longer a need for these instruments of boxcar door destruction. Why subject your car doors to pushing, beating, banging and twisting? That kind of treatment only adds to tempers, downtime and car maintenance costs.

The Hennessy Slidewell Door Control provides you with an easier way, a sensible way, and a much less costly method. An almost effortless turn of the wheel is all that's required to open and close boxcar doors, because the Slidewell has a 35 to 1 mechanical advantage. Door is opened in seconds and locks to open position. To close, just lift the locking pawl and turn the wheel in the reverse direction. What's the cost? No more, and probably less than the cost for one car door repair.

The Slidewell Door Control fits all boxcar sliding doors, and installation is fast and uncomplicated. The unit has been thoroughly tested. It's rugged and dependable and solves a real railroading problem. On your cars (old and new), the Slidewell will keep your shippers better satisfied and eliminate a substantial percentage of your car door maintenance cost. What cost-conscious, public-relations-minded railroader could ask for more?

WRITE FOR COMPLETE DETAILS AND PRICES

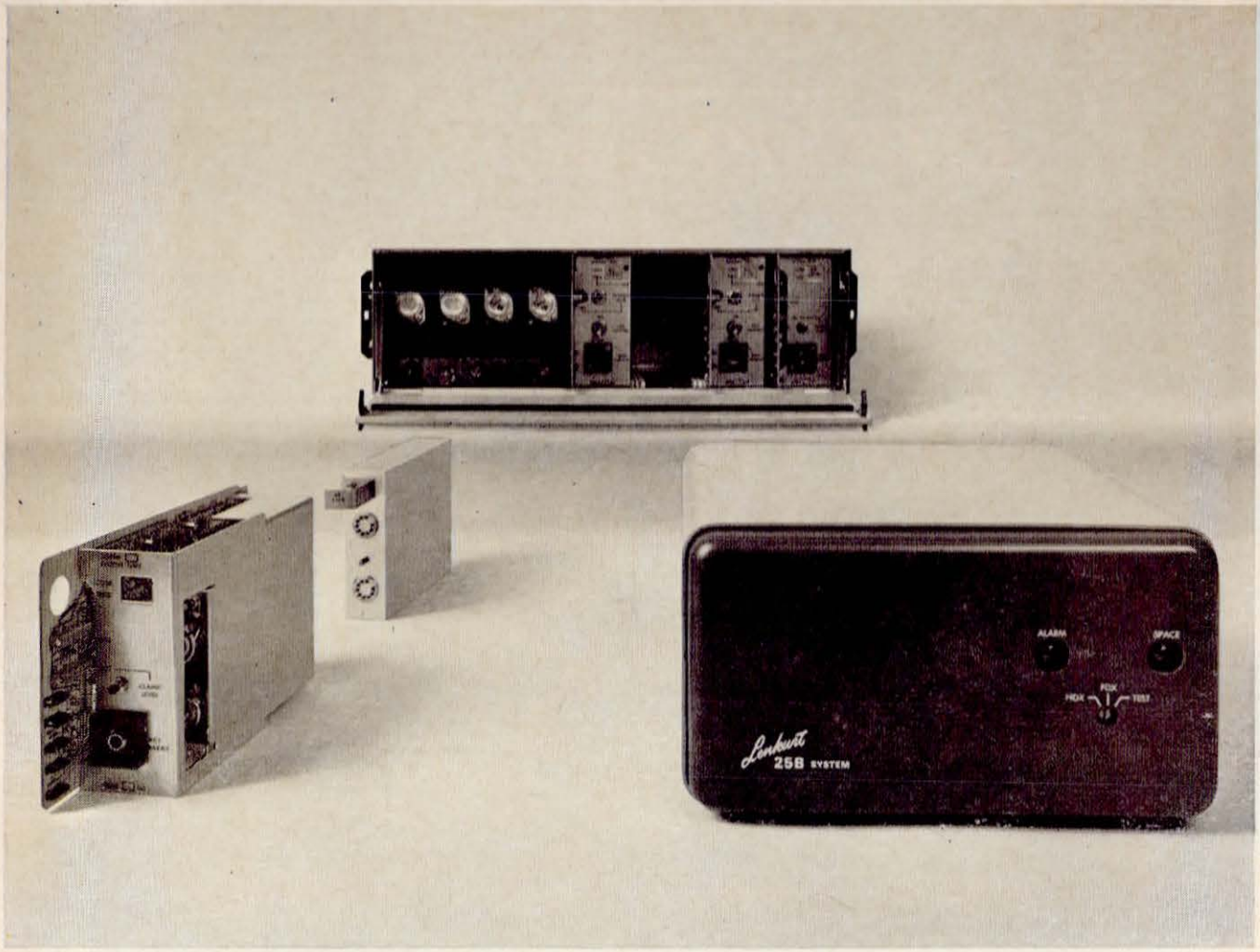
MEMBER RPI RAILWAY PROGRESS INSTITUTE

HENNESSY PRODUCTS

Patent Pending

HENNESSY PRODUCTS, INC., BOX 420, CHAMBERSBURG, PA. 17201

Circle 53 on coupon page 85



Introducing the versatile 25B Data Transmission System by Lenkurt: Adaptable to whatever mode your data's in.

The new 25B Data Transmission System is the economical way to handle computer, telegraph, and telemeter data – individually or in combination.

With the 25B, you get unmatched flexibility both in types of channels and in equipment arrangements. Plug-in filters give you a choice of five channel spacings and related data speeds – from 120 Hz for 75 b/s to 1020 Hz for 600 b/s. Compared to similar systems, you get about 20% more speed for a given channel spacing.

For single-channel operation, all you need is a pair of compact, self-contained modems working end-to-end. For multichannel applications, use two sets of terminal equipment. Or you can use terminal equipment to work into modems at several remote locations.

There are added benefits. Like three-frequency operation – ideal for on-hold-off applications. Like built-in test facilities. And many others.

Want more facts? Just call or write Lenkurt Electric Co., Inc., San Carlos, California.

LENKURT ELECTRIC
Subsidiary of
GENERAL TELEPHONE & ELECTRONICS

Circle 56 on coupon page 85

New SLIDEWELL Door Control Solves Serious Shipper Problem and Cuts Cost of Car Door Replacement and Repair

Why put up with the extra cost and inconvenience of present day car door opening-closing practices? Shippers can forget the forklifts and put away the sledgehammers, crowbars, cables, chains and blocks. There's no longer a need for these instruments of boxcar door destruction. Why subject your car doors to pushing, beating, banging and twisting? That kind of treatment only adds to tempers, downtime and car maintenance costs.

The Hennessy Slidewell Door Control provides you with an easier way, a sensible way, and a much less costly method. An almost effortless turn of the wheel is all that's required to open and close boxcar doors, because the Slidewell has a 35 to 1 mechanical advantage. Door is opened in seconds and locks to open position. To close, just lift the locking pawl and turn the wheel in the reverse direction. What's the cost? No more, and probably less than the cost for one car door repair.

The Slidewell Door Control fits all boxcar sliding doors, and installation is fast and uncomplicated. The unit has been thoroughly tested. It's rugged and dependable and solves a real railroading problem. On your cars (old and new), the Slidewell will keep your shippers better satisfied and eliminate a substantial percentage of your car door maintenance cost. What cost-conscious, public-relations-minded railroader could ask for more?

WRITE FOR COMPLETE DETAILS AND PRICES

MEMBER RPI RAILWAY PROGRESS INSTITUTE

HENNESSY PRODUCTS

Patent Pending

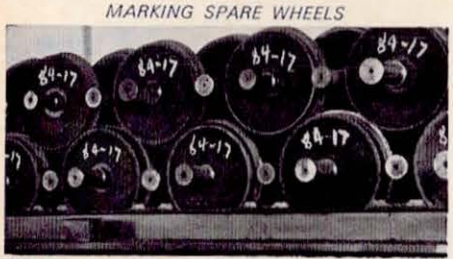
HENNESSY PRODUCTS, INC., BOX 420, CHAMBERSBURG, PA. 17201

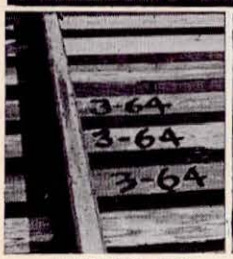
REPAIR PARTS • DAMAGE INSPECTION
SIGNS • TOOLS • BATTERIES • PARTS • WHEELS • EQUIPMENT
RAILS • TIES
FASTEST WAY TO MARK-IDENTIFY RAILS WHEELS TIES
B Markal Paintstik MARKER
PERMANENT • WEATHERPROOF • RADIO PROOF

THOUSANDS OF RAILROAD APPLICATIONS USE

Markal® "B" Paintstik® MARKERS

MARKING SPARE WHEELS





MARKING TIES

MARKING RAILS

Identify Anything—marks are permanent—weatherproof—waterproof—won't rub off. Markal Paintstik Markers are always ready for instant use. For temperatures from —50° to 250°F.

Send for Free Marking Sample and Wall Chart . . . shows thousands of marking applications.

See us at the Railway Supply Association Show—Booth 182

Markal® COMPANY

Circle 54 on coupon page 85

Union Pacific wins top E.H. Harriman safety award

Transportation Secretary Alan S. Boyd will present E. H. Harriman Memorial Safety Awards to 21 railroads—20 U.S. and one Canadian—at a luncheon Sept. 25 at the Madison Hotel in Washington. Announcement of the awards—given for outstanding safety records compiled in 1967—was made last week by the World Safety Research Institute.

The Awards Committee, headed by Harold F. Hammond, president of the Transportation Association of America, picked 12 railroads to receive gold, silver or bronze certificates for first, second and third place, respectively, for the best employee performance in four competitive categories. The committee also selected four railroads to receive certificates of commendation for improvement in employee safety during the year.

It was disclosed that Class I railroads' fatality rate for employees on duty last year was .91 per 10 billion gross ton-miles—the third lowest in the industry's history.

The winners in Group A (Class I line-haul railroads actually working 20 million man-hours or more a year) are:

First—Union Pacific.

Second—Southern Pacific System (Including Northwestern Pacific).

Third—Louisville & Nashville.

Railroads winning in Group B (Class I line-haul railroads actually working 5 million but less than 20 million man-hours a year) are:

First—St. Louis Southwestern.

Second—Elgin, Joliet & Eastern.

Third—Western Maryland.

Winners in Group C (Class I line-haul railroads actually working less than 5 million man-hours a year) are:

First—Bessemer & Lake Erie.

Second—Bangor & Aroostook.

Third—Duluth, Missabe & Iron Range.

Class I switching and terminal companies winning 1967 safety awards are:

First—Kentucky & Indiana Terminal.

Second—Union Railroad.

Third—Indiana Harbor Belt.

Certificates of commendation for special improvement during the year will go to:

Chicago, Milwaukee, St. Paul & Pacific.

Missouri-Kansas-Texas.

Akron, Canton & Youngstown.

Kentucky & Indiana Terminal.

The total of 13 passenger fatalities in 1967 produced a fatality rate of only .09 per 100 million passenger-miles, almost 50% lower than 1966. In the competition based upon excellence in passenger safety, six passenger-carrying railroads tied for first place—each with no fatalities. These were the Pennsylvania-Reading Seashore Lines, Canadian Pacific Lines in Maine, Monon, Georgia, Soo Line, and Florida East Coast.

More than 100 railroad officers, other transportation executives, members of Congress and government officials are expected to attend the awards dinner in Washington.

The E. H. Harriman Awards were begun in 1913 by the late Mrs. Mary W. Harriman in memory of her husband, a railroad pioneer. They are continuing under the sponsorship of two sons, W. Averell Harriman, ambassador at large and former governor of New York (who heads the U.S. delegation at the Paris peace talks), and E. Roland Harriman, chairman of the American National Red Cross. ■

DIFFERENTIAL AIR DUMP CARS

CARRY MORE · WEIGH LESS!

MAINTENANCE OF WAY . . . ideal for ditching, rip-rapping, widening banks, and power shovel work.

REVENUE SERVICE . . . fast economical bulk handling for unit train or fast turn-around applications.

8-second dumping — all-welded construction — sizes to 70 cu. yds.

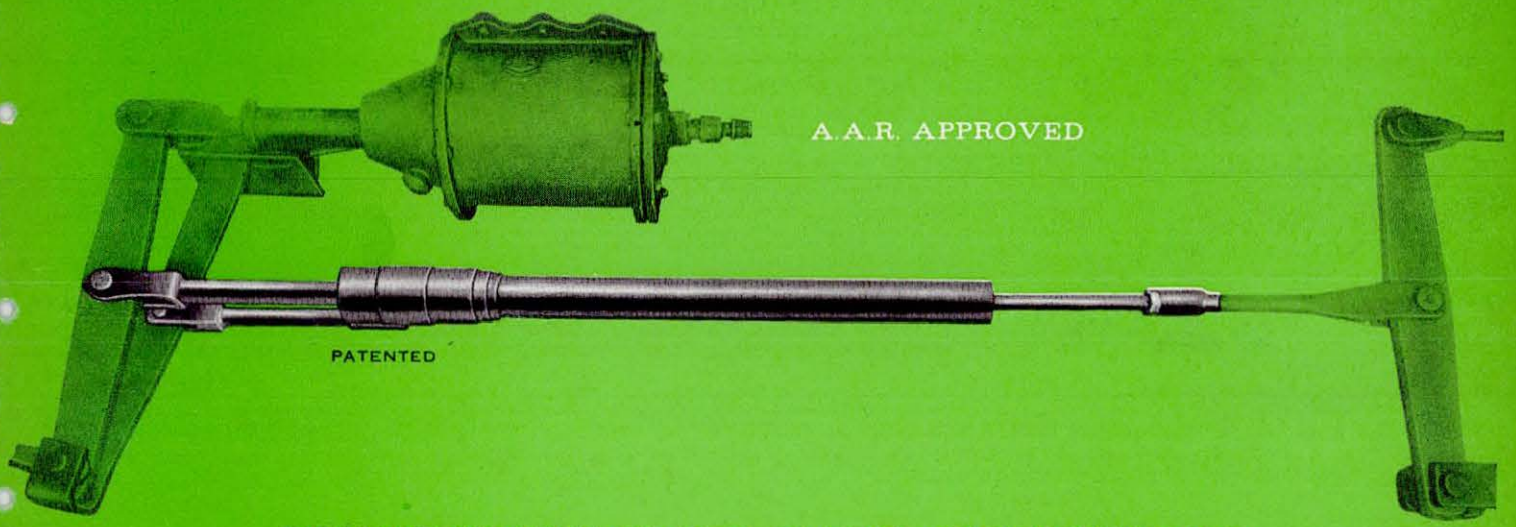
Write for bulletin D-59

DIFCO, Inc. Box 238, Findlay, Ohio 45840, U.S.A. Ph. (419) 422-0525

Circle 57 on coupon page 85

Universal®

AUTOMATIC TWO-WAY BRAKE ADJUSTER



PROPER PISTON TRAVEL IS ALWAYS MAINTAINED!
DESIGN SIMPLICITY OF THE CONE CLUTCH
ASSURES TROUBLE-FREE PERFORMANCE!

Proper piston travel is maintained by shortening of the Universal Automatic Two-Way Brake Adjuster when wear occurs on brake shoes and wheels. The brake adjuster lengthens when brake shoes are renewed. No manual adjustments are necessary.

All parts are manufactured of metal and surpass A.A.R. Specifications for strength and safety. They are sealed from foreign particles, adding to service life.

Carefully researched and developed, this adjuster offers precision braking that will save operating time and maintenance costs for many years.

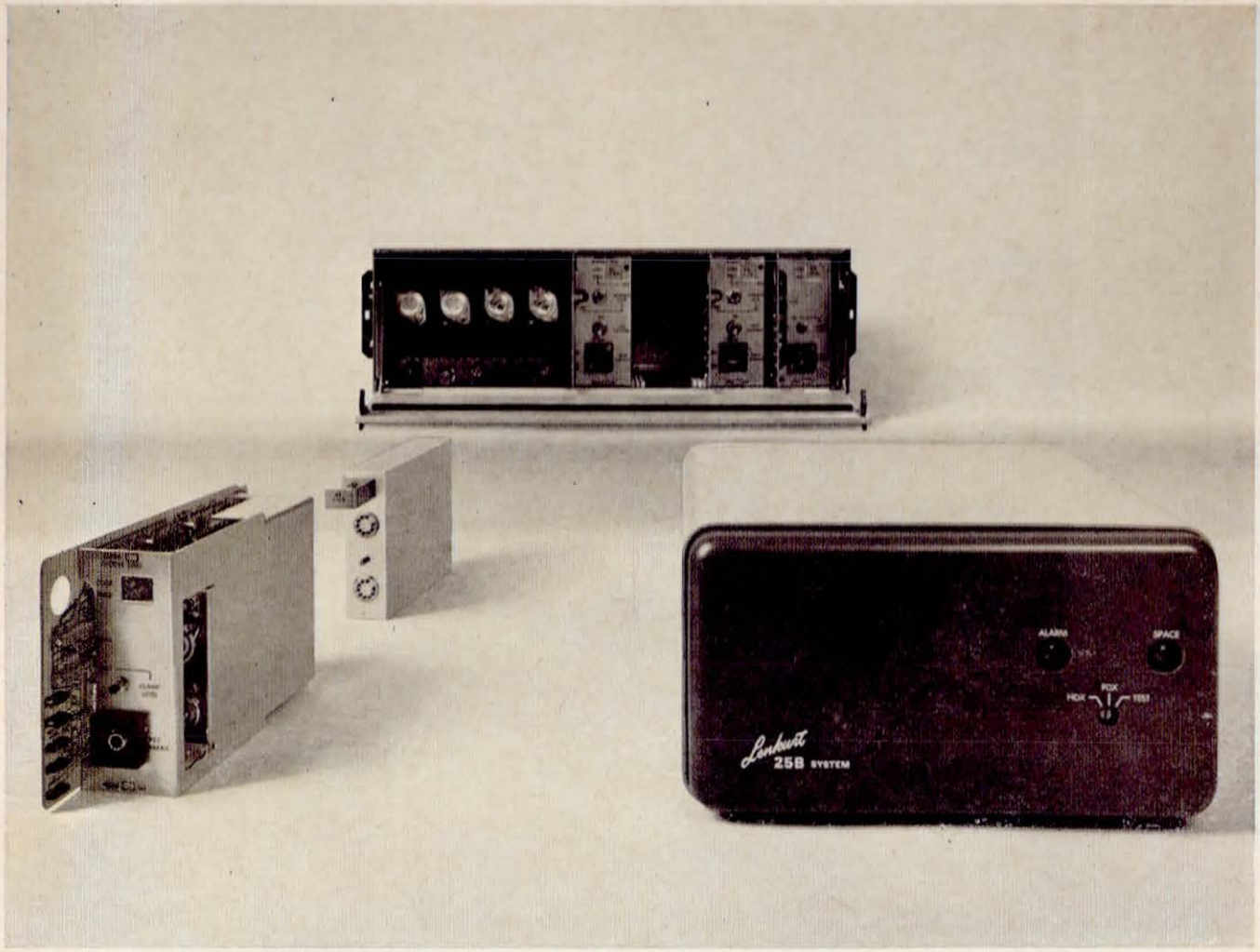
UNIVERSAL RAILWAY DEVICES COMPANY

332 S. MICHIGAN AVENUE, CHICAGO, ILL. 60604 • TELEPHONE 312-427-5051

CANADIAN CARDWELL CO., LTD., MONTREAL 2, QUEBEC

For all types of freight cars... SPECIFY FOR SAFETY—SPECIFY UNIVERSAL!

Circle 55 on coupon page 85



Introducing the versatile 25B Data Transmission System by Lenkurt: Adaptable to whatever mode your data's in.

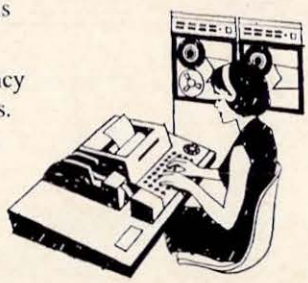
The new 25B Data Transmission System is the economical way to handle computer, telegraph, and telemeter data – individually or in combination.

With the 25B, you get unmatched flexibility both in types of channels and in equipment arrangements. Plug-in filters give you a choice of five channel spacings and related data speeds – from 120 Hz for 75 b/s to 1020 Hz for 600 b/s. Compared to similar systems, you get about 20% more speed for a given channel spacing.

For single-channel operation, all you need is a pair of compact, self-contained modems working end-to-end. For multichannel applications, use two sets of terminal equipment. Or you can use terminal equipment to work into modems at several remote locations.

There are added benefits. Like three-frequency operation – ideal for on-hold-off applications. Like built-in test facilities. And many others.

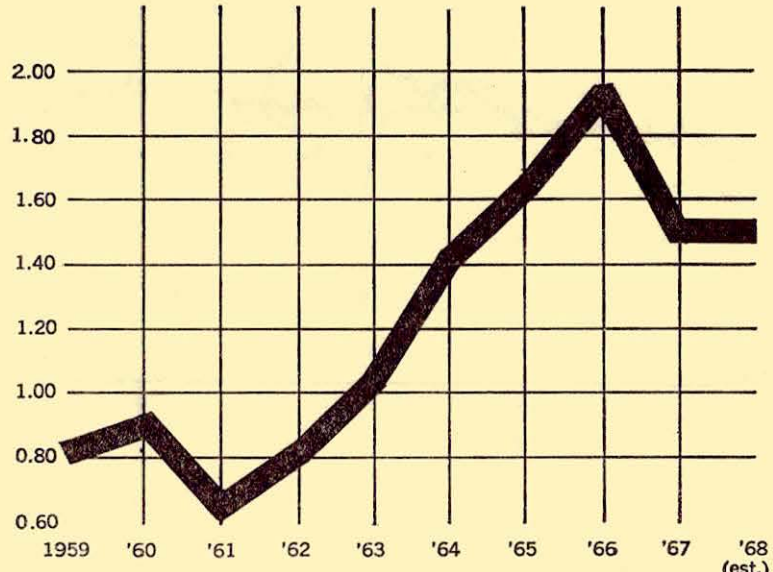
Want more facts? Just call or write Lenkurt Electric Co., Inc., San Carlos, California.



LENKURT ELECTRIC
Subsidiary of
GENERAL TELEPHONE & ELECTRONICS

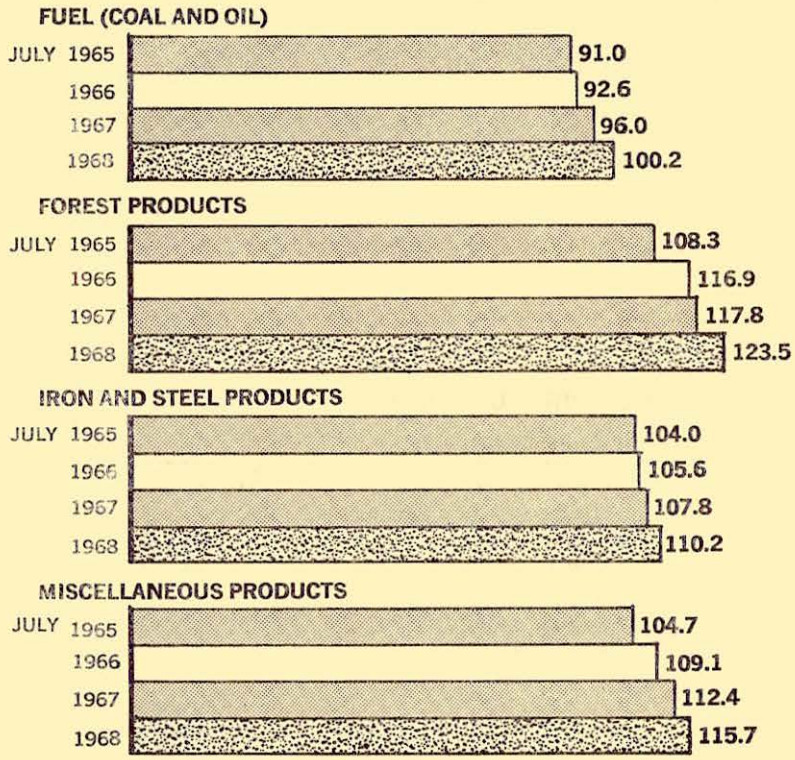
Circle 56 on coupon page 85

RAILROAD CAPITAL EXPENDITURES: 1959-68
(billions)



Source—Estimate for 1968: Securities and Exchange Commission; all other figures: Economics and Finance Dept., AAR.

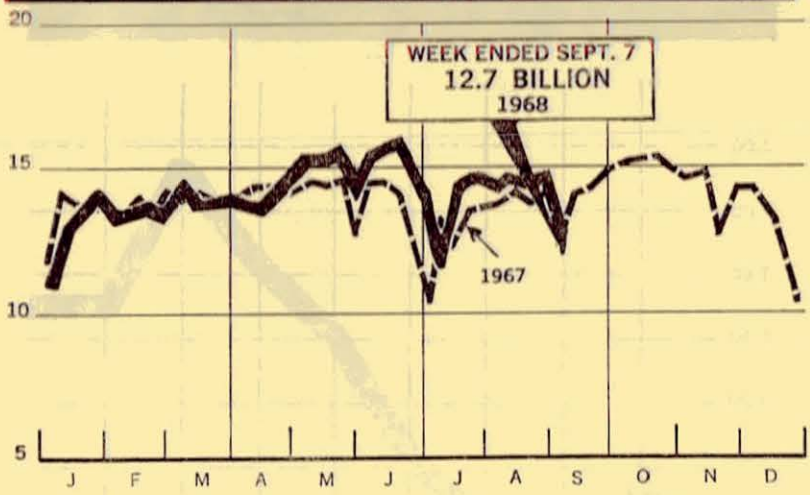
INDEX OF PRICES OF RAILROAD FUEL, MATERIAL AND SUPPLIES*
(CLASS I RAILROADS)



*Based on prices as of first day of month shown. Average 1957-59 equals 100.
Source: Economics and Finance Dept., AAR.

RAIL FREIGHT TRAFFIC TRENDS

BILLION TON-MILES (Estimated)



Source: Association of American Railroads

SHIPMENTS OF RAILROAD STEEL PRODUCTS

(JULY AND FIRST SEVEN MONTHS 1968)

NET TONS

	July	Per Cent Change*	Seven Months	Per Cent Change*
Rails, trackwork and equipment	113,594	+107.2	684,126	+6.4
Freight and passenger cars and locomotives	186,393	+27.9	1,333,613	—6.6
Street railways and rapid transit systems	6,142	+17.0	43,452	+69.8

*Per cent change compares 1968 periods with like 1967 periods.
Source: American Iron and Steel Institute.

Current Statistics

Net income, Class I roads	
Six months, 1968	$284,000,000
Six months, 1967	$265,000,000
New freight cars on order	
August 1, 1968	16,943
August 1, 1967	26,904
New freight cars delivered	
7 months, 1968	34,854
7 months, 1967	53,273
Serviceable cars	
August 1, 1967	1,393,000
August 1, 1967	1,415,035

MARKET OUTLOOK

CARLOADINGS

Loadings of revenue freight in the week ended Sept. 14 totaled 582,763 cars, the Association of American Railroads announced on Sept. 19. This was an increase of 90,805 cars, or 18.5%, compared with the previous week; an increase of 15,942 cars, or 2.8%, compared with the corresponding week last year; and a decrease of 33,549 cars, or 5.4%, compared with the equivalent 1966 week. Ton-miles generated by carloadings in the week ended Sept. 14 are estimated at 15.0 billion, an increase of 6.0% above the corresponding week of 1967, and 0.6% below the 1966 week.

REVENUE FREIGHT CARLOADINGS
For the week ended Saturday, Sept. 14

District	1968	1967	1966
Eastern, including Allegheny and Pocahontas	219,229	219,754	248,584
Southern	128,935	119,789	114,061
Total Eastern and Southern Districts	348,164	339,543	362,645
Northwestern	80,853	82,320	94,647
Central Western	113,766	106,873	118,868
Southwestern	39,980	38,085	40,152
Total Western Districts	234,599	227,278	253,667
Total All Roads	582,763	566,821	616,312
Commodities:			
Grain and Grain Products	45,398	43,836	53,648
Livestock	2,217	2,314	3,554
Coal	111,150	111,436	117,861
Coke	6,475	6,967	8,523
Forest Products	44,504	42,058	39,342
Ore	45,647	42,833	61,381
Merchandise l.c.l.	4,415	4,162	6,610
Miscellaneous	321,957	313,215	325,393
Sept. 14	582,763	566,821	616,312
Sept. 7	491,958	487,872	530,714
Aug. 31	573,795	572,461	613,968
Aug. 24	548,140	552,585	601,864
Aug. 17	558,523	569,772	593,333
Cumulative total, 37 weeks	19,963,869	19,824,323	20,915,685
Estimated revenue ton-miles (billion) 37 weeks	527.4	507.1	522.1

PIGGYBACK CARLOADINGS

U. S. piggyback loadings for the week ended Sept. 7 totaled 23,658 cars, carrying 38,970 trailers, compared with 21,241 cars, carrying 35,052 trailers, in the corresponding 1967 week. Loadings for 1968 up to Sept. 7 totaled 909,765 cars, carrying 1,477,921 trailers, compared with 813,357 cars, carrying 1,336,334 trailers, in the corresponding period of 1967.

IN CANADA

Carloadings for the seven-day period ended Aug. 21 totaled 71,675 cars, compared with 69,947 for the previous seven-day period, according to the Dominion Bureau of Statistics.

	Revenue Cars Loaded	Total Cars Rec'd from Connections
Totals for Canada		
Aug. 21, 1968	71,675	21,946
Aug. 21, 1967	73,562	22,994
Cumulative Totals		
Aug. 21, 1968	2,368,820	791,494
Aug. 21, 1967	2,427,356	802,280

FREIGHT-TRAIN CARS

• *Katy.*—Will lease 400 open-top hopper cars, valued at $5,052,000, from C.I.T. Leasing Corp.

LOCOMOTIVES

• *Katy.*—Is taking delivery of 17 3,000-hp GP40 diesel-electric road units and four 1,500-hp switching units from EMD. Total cost of the order is about $4,000,000.

• *Southern.*—Ordered 30 1,500-hp switcher locomotives from EMD at a cost of more than $4.5 million. Deliveries will be completed by mid-December.

PASSENGER TRAIN CARS

• *Long Island.*—General Electric's Transportation Systems Division will supply propulsion equipment and automatic speed regulation systems for the 350 additional cars which the Budd Co. will build for the LIRR (RA, Aug. 12, p. 12). GE supplied similar equipment for 270 cars which Budd is building for the LIRR under an order placed last year. The two lots make this the largest order for electrical systems ever received by a supplier, according to GE.

CAPITAL EXPENDITURES

• *Missouri Pacific.*—1969 program will include purchase of 24 locomotive units and 861 new freight cars at a total cost of about $24.6 million. Freight-car program will involve orders for 250 50½-ft, 70-ton box cars; 111 60-ft, 100-ton box cars; 200 60-ft, 100-ton insulated box cars; 200 60-ft, 100-ton bulkhead flat cars; and 100 60-ft, 100-ton flat cars. All cars will be equipped with cushioning devices and roller-bearing trucks. Box cars will be equipped with load dividers or other load-restraining devices.

NEW FACILITIES

• *Burlington.*—Will install, on a lease basis, a Railweight coupled-in-motion weighing system at Lincoln, Neb.

• *Penn Central.*—Ordered 100 sets of coded cab signal equipment and 300 sets of intermittent inductive train stop equipment from the Signal & Communications Division of WABCO at a cost of nearly $1 million. The equipment will permit interchangeability of locomotives between the former Pennsylvania and New York Central trackage.

• *San Francisco Bay Area Rapid Transit.*—Directors approved award of a $1.6-million contract to Philco-Ford Corp. for production of an electronic control and communications system to be installed at train and right-of-way maintenance yards at South Hayward and Oakland.

YOU OUGHT TO KNOW

REA Express and ship line get new PR officers

Joseph T. Kane has been named director of public relations and advertising of REA Express. He succeeds Richard A. Strickland, who has joined American Export Industries in the new post of director of communications. Kane had been serving as REA's assistant director of PR and advertising since Nov. 1967. Previously, he worked for the Port of New York Authority and was a newspaperman. Strickland had been with REA since 1953, and formerly was a corporate and financial public relations consultant.

Award to be made to developer of ACI system

Francis H. Stites, senior engineering specialist with the Sylvania Co., will be presented with the 1968 George R. Henderson Medal of The Franklin Institute for his work in developing the automatic car identification system known as "KarTrak," the system recommended as the standard by the AAR. Presentation of the medal, which is bestowed for "meritorious inventions or discoveries in the field of railway engineering," will be made in Philadelphia Oct. 16.

Diversification by rails making stock attractive

There's reawakened investor interest in railroad stocks because of diversification activity by the railroads, a New York financial house observed last week. In their Sept. 16 stock survey, Moody's Investors Service pointed to Illinois Central Industries' proposal to acquire Abex as an example of the latest move in that direction. Moody's said a wide round of inflationary price increases also created interest in companies with important natural resources.

Alco reorganizes to form four market operations

"It has been clear for some time that Alco serves four major product markets," Alco President E. C. Forbes said last week, revealing a company reorganization that will serve the four market areas —locomotives, parts and services, diesel engines, and forgings and springs. The newly-formed subsidiaries will be Alco Locomotive Inc., Alco Products Service, Inc., Alco Engine, Inc., and Alco Forge & Spring, Inc. Forbes said Alco "has been moving in the direction of separating these operations for some time and we now have completed and formalized the reorganization. We believe Alco is now in a better position than ever to serve our world-wide customers in all four markets." Alco Locomotive and Alco Products Service are headquartered at Schenectady, N.Y., Alco Engine is at Auburn, N.Y., and headquarters for Alco Forge & Spring remain at Latrobe, Pa.

ASME is planning transport session in Washington

Some 45 professional papers on transportation via rail, air, maritime, highway and rapid transit will be delivered at a three-day transportation engineering conference sponsored by the American Society of Mechanical Engineers and the New York Academy of Sciences in the Statler Hilton, Washington, D.C., Oct. 28-30. Participants in the 11 sessions will include scientists, engineers, administrators, psychologists, and sociologists from government, industry, private institutions and the academic world.

Sea-Land gets "E" for effort in transportation

President Johnson's "E" certificate of service has been presented to Sea-Land Service, Inc., of Elizabeth, N.J., for contributing to increased sales of U.S. products abroad. The citation, presented by DOT Secretary Alan S. Boyd at ceremonies in Washington, credited the firm with "an aggressive and forward-thinking leadership that has aided significantly in the introduction of new products into the export business, reflecting credit on the company and the American free enterprise system."

Advertisers' Index

Abex Corporation 99, 106
ACF Industries, Inc. 28-29
Adams & Westlake 14
Alco Products, Inc. 22
Aluminum Co. of America 36-37
American Oil Company 100-101
American SAB Company, Inc. 10
Berwick Forge & Fabricating Corp. 104
Buckeye Steel Castings Co. 91
Budd Company, The 92-93
Buffalo Brake Beam Co. 4
Cardwell Westinghouse Co. 9
Cities Service Oil Company (CITGO) 75-79
Dalmo Victor Company 72
Demp-Nock Company 74
Difco, Inc. 108
Doweloc Division, D. F. Frampton & Company 64
Edgewater Corporation 19
Ex-Cell-O Corporation 15
Farrel Corporation 102
FreightMaster, Division of Halliburton Services 23
General Railway Signal Co. 95
General Steel Industries, Inc. 13
Greenville Steel Car Co. 68-69
Griffin Wheel Company, Amsted Industries 103
Hennessy Products, Inc. 107
Humble Oil & Refining 73
International Nickel Co. 18
Johns-Manville Corp. 34-35
Lenkurt Electric Company 110
Markal Company 108
Marquardt Corp., The 63
Miner, Inc., W. H. 6
MLW-Worthington Limited 53
Molded Fiber Glass Body Co. 38
New York Air Brake Co., A Unit of General Signal Corporation 24-25
NTN Bearing Corp. of America 30
Pittsburg Forgings 81
Pullman Standard, Div. of Pullman, Inc. 16-17
Reynolds Metals Company 57-60
Rockwell Manufacturing Co., LFM - Atchison Div BC
Safety Electrical Equipment Corp. 98
Scullin Steel Co. 105
Servo Corporation of America 44, 67
Shell Oil Company 70-71
Sinclair Refining Company 31
Speno Railroad Ballast Cleaning Co., Inc., Frank 74
Stanray Corporation 20-21
Stromberg-Carlson 96
Stucki Company, A 43
Sylvania Electric Products, Inc., Commercial Electronics, Division 27
Symington Div. of Symington Wayne ..... IBC
Timken Roller Bearing Company, The IFC-3
Unity Railway Supply Co. Inc. 26, 97
Universal Railway Devices 109
Vapor Corp. 94
WABCO - Westinghouse Air Brake Division 88-89
WABCO - Railroad Friction Products Corp. 34-35
WABCO - Signal & Communications Division 39-42

LOCOMOTIVES • LOCOMOTIVE CRANES
All Types of Cars • Bought—Sold—Rented
Call Murray Grainger (201)743-8700
CAPITAL EQUIPMENT
P.O. Box 591 Bloomfield, N.J. 07003

FOR SALE

1 — 600 Horsepower General Motors Diesel Switcher. Built in 1946. Specifications available.

Groveton Papers Company
c/o Arlie G. Smith
Groveton, N.H. 03582

FOR SALE—PASSENGER TRAIN CARS

19 Baggage
3 Mail (RPO)
5 Club - Dormitory
4 Lounge
5 Diners
39 Coaches

Offered "as is" subject to inspection various points Union Pacific System and F.O.B. any point our lines. For locations and diagrams contact R. J. Murphy, Gen. Pur. Agent, 1416 Dodge St., Omaha, Nebr. 68102.

SIGNAL SUPERVISOR
Experienced in all phases of railroad signal work. Headquarters, Alexandria, Va. Liberal fringe benefits. Salary open. Send resume to Mr. T. B. Choate, Director of Personnel, Richmond, Fredericksburg and Potomac Railroad Co., Room 209, Broad St. Station, Richmond, Va. 23220. An equal opportunity employer.

HAVE A HEART
SUPPORT
YOUR
HEART FUND

HELP WANTED
New York short line railroad has anticipated openings in various positions for persons presently qualified or willing to learn. If your interest is in accounting, traffic, general management, loco repair or track maintenance, and you are looking for an interesting position, send a brief resume stating education, experience and abilities to:
Box 252
Railway Age
30 Church Street
New York, New York 10007

LOCOMOTIVES FOR SALE OR LEASE

1—44-T G.E. Switcher
1—45-T G.E. Switcher
1—70-T G.E. Switcher
2— 660 H.P. Alco Switchers
2—1000 H.P. Alco Switchers
2—1000 H.P. F-M Switchers
3—2000 H.P. F-M-Switchers
6—2400 H.P. F-M Trainmaster
1—40-T Industrial Brownhoist crane, 60 ft. boom.

Parts for all Locomotives.

Striegel Supply & Equipment Corp.
6001 Chemical Road
Baltimore, Md. 21226

Assistant Chief Engineer
For railroad of intermediate size. Replies should state age, education and experience of applicant, and present salary. Must have or be able to qualify for state professional engineering license. Replies are confidential. **Box 251, Railway Age, 30 Church Street, New York, N. Y. 10007.**

Advertising Sales Department

C. J. Fisher, vice president—sales, Chicago

New York, N. Y. 10007,
30 Church St., (212) 964-3060
W. A. Cubbage—regional sales manager
Charles E. Keil—district manager

Chicago, Ill. 60604,
14 E. Jackson Blvd.
(312) 427-3501
K. F. Sheeran—regional vice president;
John M. Brennan—regional sales manager
Wm. J. Lyneis
Ross Mandic
—district managers

Lakewood, Ohio 44107,
12700 Lake Ave., Apt. 1310
(216) 226-8038
Harry H. Melville—vice president

Pittsburgh, Pa. 15219, Room 720,
(412) 471-7871
Frick Building
Ronald M. Giallonardo—regional sales manager

Dallas, Tex. 75206
Noel Page Building
6400 N. Central Expressway
(214) 361-6972
Joseph Sanders

Los Angeles, Cal. 90017,
1313 West Eighth St.
(213) 483-8414
Fred Klaner, Jr.

San Francisco, Cal. 94133,
515 Pacific Ave.
(415) 421-7004
Lewis A. Vogler & Co.

London S. W. 1, England
TRafalgar 6318
67/68 Jermyn St., St. James's
Max F. Holsinger, Peter Clifton, Alan Berg

Manchester 22, England
Haletop
Wythenshawe Civic Center
Ian Goulden

Paris, 8e, France
70 Rue de Ponthieu
Stephen Brown-Joussard

4 Düsseldorf-Rath
Eitelstrasse 32
Max F. Holsinger,
E. Hillerbrand, Herbert Haibt,
Reinhard Schomburg

Tokyo, Japan
Sun Gain Shia, Ltd.
Shiba Nikkatsu Bldg.
13, Shiba Park
Minato-Ku
C. H. Yiu, Managing Director

VIEWPOINT

Public opinion: Plus — or peril?

There's no business like the railroad business—or so it sometimes seems.

Other businesses—electric and gas utilities, airlines and truck lines and pipelines, to name a few—share the private-ownership/public-regulation situation. Even companies which aren't obviously regulated—such as the automobile industry—share a measure of the railroad problem, because their vast public market makes them a public thing.

Railroads, however, still are unique.

Railroads have been around for a long, long time. People understand railroads—or assume they do—in a way that they would never apply to an airline, for example.

Railroads have been in trouble. Too many times, perhaps, they've tried to solve the problem in their own way—and their way has not recognized the public interest.

Railroads are in a jam today. Without public support, it's hard to see how the industry can come out with a whole skin, let alone with the kind of backing that's required.

Take one case in point—the ever-present passenger problem. Times have changed, even since 1958, when Congress took a more realistic look at rail passenger service.

Times have changed, to the extent that a major train-off case seems to get as much publicity as an effort to cut the national debt. The debt isn't coming down, and the trains aren't coming off, either—witness the refusal of the ICC to give an OK to the well-documented proposals for dropping the "California Zephyr" and the "City of San Francisco."

What can a railroad do? First, there has to be a recognition that a position has to be "sold"—a great legal brief isn't enough. Second, the "sellers," the contact-men between management and the public, have to be ready and able to present the case. Third, those people in rail management who refuse to accept, still, the power-of-the-public in private-enterprise situations may somehow have to be converted.

An increasing number of people are looking at the affairs of railroads, as they affect general or specific publics. This is not to say that industry goals are being set on the basis of the publicly-acceptable. It is to say that there's a greater recognition being given to the need for public understanding—and, in so many things, support.

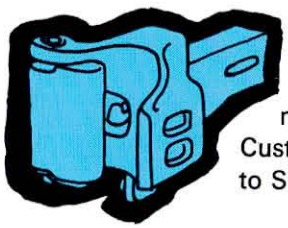
DETROIT LEARNED ITS LESSON

It's not easy for any industry to accept the influence which the public may have—especially when the public is so often emotional in its judgments. It is easy to say that the law is the law, and that's that. But the law is subject to the interpretation of men—and a stirred-up public is, to an increasing extent, making its opinions known. These opinions are being heard.

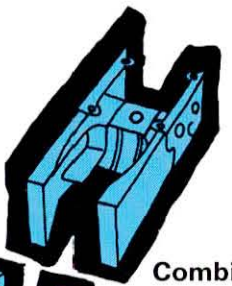
Can the "public" really get action? Can the "public" really be reached? Will the "public" move? Ask the automobile industry about a man called Nader.

symington

FREIGHT AND PASSENGER CAR AND TRUCK ACCESSORIES

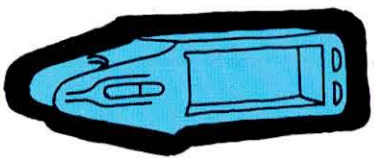


Couplers
All A.A.R. standard models in stock
Custom Models to Specifications.

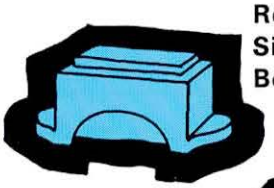


Combined Striker Castings and Front Draft Lugs

Truck Spring Snubbers

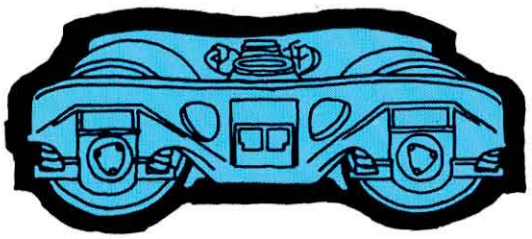


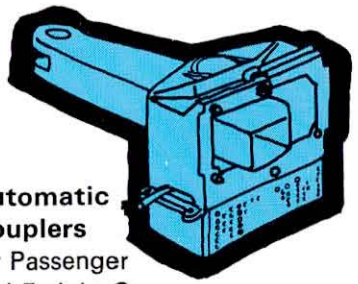
A.A.R. Standard Yokes



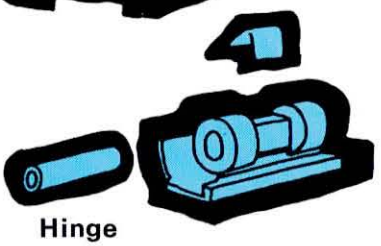
Resilient Side Bearings

Symington Trucks
Standard A.A.R. and XL High Speed models





Automatic Couplers
for Passenger and Freight Cars



Hinge
Lug Wear Plate and
"Self-Adjusting Bushing"

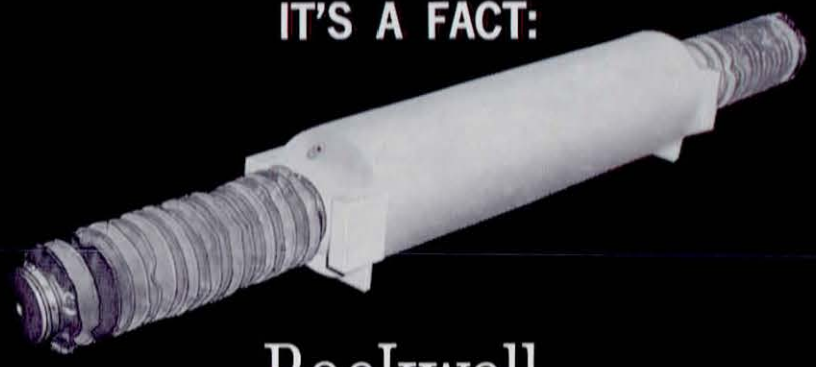
Details and Specifications on all products available on request

MEMBER RPI RAILWAY PROGRESS INSTITUTE

Symington Wayne
transportation equipment division
DRESSER INDUSTRIES, INC.

332 S. Michigan Ave. • Chicago, Ill. 60604 • 312/939-1280
Chicago • New York • Boston • Baltimore • Philadelphia • (Plant) Depew, N.Y. • St. Louis • San Francisco • W. K. Davidson & Co. LTD, Montreal, Canada

IT'S A FACT:



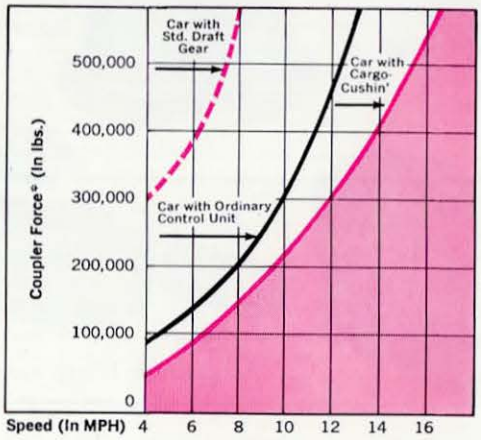
Rockwell Cargo-Cushin' proved more effective in absorbing coupling impact loads!

■ Now you have the facts: The new Cargo-Cushin' has exceptional impact-load absorbing abilities. In rigid AAR-type tests, Cargo-Cushin' quickly, smoothly cushioned coupler forces at impact.

Cars with Cargo-Cushin' had over 80% less peak load than standard cars . . . and substantially less than cars equipped with ordinary control units, as indicated in the graph below. Not shown in this data is the unusual ability of Cargo-Cushin' to maintain constant cushioning through a wide range of car loadings.

Cargo-Cushin' is interchangeable with the standard double acting 20″ sliding center sill. Savings from freight damage claims and from increased protection to rolling stock make the low cost of Cargo-Cushin' a great investment.

Specify Cargo-Cushin' on your next car program.



	With Cargo Cushin'		With Ordinary Control Unit		Car with Standard Draft Gear	
Run No.	Impact Speed MPH	Max. Force at Impact (Lbs.)	Impact Speed (MPH)	Max. Force at Impact (Lbs.)	Impact Speed (MPH)	Max. Force at Impact (Lbs.)
1	4.17	39,000	4.1	96,000	4.2	310,000
2	6.54	91,000	6.4	180,000	6.5	430,000
3	8.00	136,000	8.5	195,000	8.0	600,000
4	9.95	214,000	10.3	322,000	9.2	980,000
5	11.60	292,000	11.7	480,000	—	—
6	12.72	337,000	12.2	476,000	—	—
7	14.19	425,000	13.0	575,000	—	—

AAR Certificate No. 6814

MEMBER RPI RAILWAY PROGRESS INSTITUTE

Rockwell
MANUFACTURING COMPANY

LFM-ATCHISON DIVISION • Atchison, Kansas 66002
P.O. Box 188 • Phone: (AC 913) 367-2121

2708